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SURGICAL ESSENTIALS.

FREDERICK-EMIL NEEF, B.S., B.L., M.L., M.D.,
NEW YORK CITY.

GENERAL CONSIDERATIONS. PREPARATION OF THE PATIENT FOR OPERATION.

The career of the developing surgeon in a cosmopolitan city, no matter in what field of major surgery he specializes, is a difficult one. He may have had an extensive previous education to fit him for his work, but the patronage of a large hospital, which is almost essential to his success is not easy to obtain. In what I have to say I would address myself, not so much to him whose personal efforts and merits helped by those interested in him, or by circumstances, or tendencies in hospital politics has succeeded early in his professional life, in securing a hospital appointment which gives him the privilege of utilizing the vast material of the wards for clinical study and operation. It is the capable, but less fortunate confrère, who needs an encouraging word.

Good surgical judgment, logical asepsis, dexterous technic are the three requirements, it seems to me, that are of principal importance in the practice of surgery. But, while *surgical judgment* must gradually mature, it can be supplied, to some extent, by the careful study of one's work and by consulting with others of greater experience. *Dexterity* in executing an operation can only come with frequent repetition of a definite technic. It will be acquired sooner by him whom the hospital entrusts with the surgical care of its numerous poor, than by the colleague who has to rely on his private practice alone, for a repetition of similar cases. Fortunately it is, by all odds, the least important of the three requirements. In fact, all of us can readily call to mind surgeons of prominence, to whom we would not hestitate to entrust ourselves, because their operating is safe, although we are aware that they are not at all apt technicians. While no one endorses the undue prolongation of an operation, it is certainly wiser to proceed cautiously in a new field, than to attempt to be dexterous where this is not warranted. Besides it is well to bear in mind, that time is not such a very important factor in the patient's recovery as some seem to think, if the anesthetist is competent and the anesthesia is conducted correctly. There is something in appreciating the fact that morphin diminishes materially the quantity of anesthetic required, and that the necessary and proper plane of anesthesia is, so to speak, a very superfical one indeed.

When a surgical routine takes longer than anticipated, if the patient was in good condition for the operation, it is not so much the shock, or loss of blood, or too much anesthetic that one need to fear, as the prolonged exposure of the patient's peritoneum to accidental infection.

Most serious post-operative complications and deaths are due to infection. The full realization of this must force upon one the necessity of adhering rigidly to some logical system of asepsis. If notwithstanding, an infection has crept in, it will be easier to detect the source and to guard against similar accidents in the future. There is no reason why the asepsis should not be just as strict and logical in the first as it is in later operations; in fact to undertake *any* operation without appreciating the full meaning of asepsis, is clearly a a criminal act.

The preservation of a logical asepsis throughout the course of an operation involves the surgeon's attention and solicitude in many directions. Wound contamination may be traceable to faulty or deficient local preparation of the territory for operation, or to the hands of the operator, or to one of his assistants or nurses, or to the instruments he uses, or the suture material; it may be an operating room basin or utensil that is not surgically clean; or gauze, or wound-dressings or contact with unsterile wash. While acting in the interest of his patient's future physical well-being the surgeon assumes all the responsibility for the outcome of his measures, and for any violation of asepsis by those delegated to assist him. No matter, therefore, how exacting he may be during the tension of his work he is always entitled to alert and faithful co-operation.

The problem that confronts us first is how to render the skin or mucous membrane surgically clean for operation. Here much that is helpful in weighing the comparative values of methods em-

ployed can be gleaned from the careful study of post-operative temperatures. Slight reactions due to superficial skin or mucous membrane infections are not uncommon and often point to an inadequacy in the scheme which was followed in rendering the surface aseptic.

It is clear that no method should be simplified at the expense of safety; and, that perhaps the best, because it is the safest, depends *neither on disinfection nor on mechanical cleansing alone, but is a composite one.* It has been shown repeatedly in practice that mechanical cleansing with soap and water is of the utmost importance. But the skin is not an even surface and above all if the area is rich in follicles and glands it is unlikely that bacteria in the fatty deposits within these miscroscopic recesses are always reached by the scrubbing maneuvres. On the other hand, when a disinfectant is used, it must be one that will penetrate the fatty secretions or else the fatty secretion must have been previously removed by means of some fat solvent medium; and, secondly the disinfectant must have sufficient time to act in order to be efficient: the application of even the most powerful germicidal solutions for a few minutes before operation is of questionable value.

The recesses which cannot readily be freed from their bacterial content by mechanical means, become the sources of the slight local reaction, redness, tenderness, discharge from the incision-line which is so often attributed to the suture material or other sources. This factor is practically the one which presents the greatest difficulty in formulating a scheme for rigid asepsis. In the hope of arriving at an opinion of my own in this matter and in order to determine upon a routine for my own use I have tried a series of methods systematically during a term of years, at the same time keeping records of all the local complications in wound-healing which were traceable to infections from the skin. There is no routine procedure, however, it seems to me, which has not also its manifold inadequacies. Of the methods based on *chemical disinfection alone,* the iodine method is one of the simplest and most efficient. The routine usually consists in cleansing the skin with benzine and painting the surface with official tincture of iodine *not later* than 4-5 hours before operation; a second coat of iodine is applied in the operating room before the incision is made.

A number of small points must be observed in the successful application of iodine as a disinfectant. In shaving, it must be remembered that the hair should first be moistened and softened thoroughly with warm water and then the lather of soap applied to cause the sharp blade of the razor to glide smoothly over the surface. The shaving should be close to the skin but if it is improperly done there will be numberless bleeding papillae with exposed nerves and the subsequent painting with iodine causes the patient considerable unnecessary suffering.

In applying the iodine the swab should be wet with the solution but not dripping so that the fluid cannot run down the sides to the patient's back. The dressing of sterile gauze which protects the disinfected skin should not be covered with rubber tissue or any material impermeable to air in order to avoid macerating the epidermis and intensifying the discutient action of the iodine unduly. Too liberal application or solutions which are too strong also occasionally cause a disagreeable iodine burn, a dermatitis medicamentosa, which may require treatment for a variable time after the incision is healed. But even this might be disregarded if thereby reliable asepsis could be secured.

The object of benzine is to remove the sebaceous material and makes it possible for the iodine to penetrate readily into the bacterial furrows of the skin to exert its disinfecting action freely. But benzine is not a desirable product to use at the sick-bed. It is highly inflammable and its vapor mixed with air is easily ignited by a match, candle, cigarette, gas flame or lamp and explodes violently. In its place, I prefer to use *tetrachloride of carbon* which, while it is an excellent fat-solvent, has the advantage over benzine of being non-inflammable. Though, as far is I know, the use of carbon tetrachloride was never suggested for the purpose of a liquor expurgans in preparing the skin for operation, its use in surgery is certainly not recent. According to Sansom's work on Chloroform, published May, 1865 (*B. and F. Med. Chir., Rev.,* 1867, 551), it was tried as an anesthetic, for instance, as early as 1864 by A. E. Sansom and John Harley.

The somewhat offensive odor of the commercial product can be disguised, if desired, without materially impairing its usefulness by the addition of a little methyl salicylate dissolved in alcohol.

℞

Methyl salicylate 1.0
Carbon tetrachloride.
Alcohol U. S. P. aa.....50.0
D. S. Cleansing fluid for the skin.

The choice of the disinfectant fluid itself, is not a simple matter. Formaline is objectionable because of the irritating character of its vapor upon

the eyes of the surgeon and his assistants, as it volatilizes in the warm air of the operating theater. Bichloride of mercury is deficient in penetrating power. Iodine penetrates quickly and with proper precaution can be used in strong solutions on the skin. While a percentage of ether added to the tincture theoretically increases its diffusion in the fat secreting glands, it appears to make the application of the liquid more painful to the patient. Preceded by 1:1000 caustic soda dressing its action becomes too violent. The skin is rather tolerant to hydrochloric acid, perhaps more so than with other strong mineral acids. Most of us recall, for instance, that the fingers can be washed in concentrated hydrochloric acid with impunity to free them from anilin dye stains. This cannot be as safely done with sulphuric or nitric acids of the same concentration. The acid can be utilized in an iodine-containing tincture, as a disinfecting agent but I have not found that this liquor disinfectans is a notable improvement over the simple tincture of iodine.

℞

Hydrochloric acid, U. S. P.... 20.0
Iodine 1.0
Alcohol, U. S. P. ad.....100.0
D. S. External use.

The most salient objection to the use of any disinfectant method *alone* is that it does not provide sufficiently for an *intermediary contamination* of the disinfected area. It is difficult to keep a previously disinfected abdomen, particularly the hypogastrium covered with its sterile dressing during the preparatory manipulations in the operating room. It is practically out of the question in gynecological cases, where a preliminary bimanual examination is almost always imperative. When a vaginal operation precedes the abdominal, it is impossible to escape dislodging, saturating or soiling the abdominal dressing. *The brief disinfectant action of a final coat of iodine, liquor disinfectans, or other disinfectant solution immediately before making the incision, cannot be considered sufficient to eliminate this source of danger from intermediary contamination.*

A simple routine for mechanical cleansing consists of scrubbing with warm sterile soapsuds, rinsing with sterile water and drying the area carefully with a sterile towel. The residual moisture in the pores is removed by means of strong alcohol which is allowed to act for one minute, the field of operation is then dried systematically with a sterile towel and draped for operation. It is understood, of course, that the assistant who is entrusted with this task wears sterile rubber gloves. Where the skin is comparatively even and poorly supplied with hair-follicles and glands the asepsis obtained by this procedure is probably at least as reliable as that attained by available disinfecting methods. When, however, the incision invades the hypogastrium for example, as in operations on the female pelvic organs, the asepsis of the skin becomes more uncertain. The numberless minute recesses and pits which lie below the surface level and into which the skin-glands pour their secretions are congenial lodging and breeding places for bacteria and can usually be but inadequately scoured by simple friction with soapsuds and brush, wood-fiber or gauze. It is here, and in most cases, safer to allow the final *surface cleansing* by the mechanical method which is accomplished in the operating room to be preceded by *not less than* 4-6 hours with a *deep disinfection* of the pores of the skin by one of the chemical methods.

Of course no one who has critically studied the results of such efforts to obtain a strict asepsis by methods which are tolerated by the skin and patient will contend that this is invariably possible. It is aimed to reduce the risk to a minimum by combining a disinfecting with the mechanical procedure. The surgeon thoroughly educated in asepsis, always conscious of this shortcoming, avoids as far as possible unnecessary handling of the skin or contact with its surface, above all when working in a follicular territory. As soon as the incision is made, sterile towels are clamped with Backhaus' towel-clamps to the edge of the wound so that the skin about the incision is completely draped and only the gaping wound is exposed. The clamps referred to are 3⅛ inch long and have tenaculum-like ends which are bent at a right angle to the blades of the instrument. They have a screw-lock and a catch, and open and close like scissors. In the case of the *mucous membranes,* benzine, benzol, ether, or carbon tetrachloride are superfluous because there is no fatty secretion. On the other hand the relative inaccessibility, the irregularity and great vunerability of the surface present new difficulties both in cleansing and in disinfection.

I know of nothing better than an aqueous solution of tannic acid for bathing the catarrhal mucous membrane to render it clean for operation. The tannic acid precipitates the chief constituent of the mucus in the form of an insoluble tanno-proteid and with it the entangled bacteria; the deposited mucus is then readily washed away. A one per cent. solution of the acid in water is sufficient for ordinary purposes, but where this is of advantage

even a 50 per cent. solution could be used without incurring the risk of any toxic effect whatever or damaging the mucous membrane. Because it is neither poisonous nor caustic it can be used with impunity in the naso-pharynx and mouth, vagina, bladder or rectum. I have adopted it in my routine before and after vaginal operations in the place of solutions of bichloride of mercury, lysol, iodine, sodium hydrate, which are in vogue. It is in post-operative vaginal discharge when various other chemicals have been tried without much avail that the striking efficiency of the tannic acid douche in removing the secretions can be best demonstrated. For reasons similar to those which prompt the *deep disinfection* of the skin the mucous membrane of the vagina may be treated with an iodine-containing fluid preliminary to operation. The following solution can be employed, but in the young and susceptibe, mucous membrane, the iodine content may have to be reduced.

℞	Iodine	5.0
	Potassium iodid	8.0
	Tannic acid	1.0
	Distilled water	20.0
	Glycerine ad	100.0

D. S. Iodine-tannin solution.

Until a *simpler* method that promises the same uniform asepsis and is as generally applicable, can be found, I have, for my own work, decided to adhere to the *combined procedure* which is incorporated in the following routine for the general and local preparation of the patient for operation.

ROUTINE PREPARATION OF THE PATIENT FOR ARDOMINAL OR VAGINAL CELIOTOMY.

10 A. M. Calomel, gr. iii, given in a single dose. Unless contraindicated allow the patient to have a general bath. Shave the abdomen, pubes, vulva, inside of thighs; pubes closely. Render the area clean by means of soapsuds and water, the umbilicus and pubes receiving particular attention.

12 A. M. Dinner. Light diet.

4 A. M. Effervescent magnesium citrate U. S. P. Cij. Soapsuds enema until clear. Vaginal douche, 1:100 aqueous tannic acid solution, Cij.

6 P. M. Light supper.

8 P. M. Soapsuds enema until clear. Vaginal douche, 1:100 aqueous tannic acid solution, Cij. Cleanse area of operation with carbon tetrachloride, the hairy zones, especially, and dry with sterile gauze. Paint with the official tincture of iodine avoiding an overflow of the irritating fluid. Cover with a dressing of sterile gauze. If a vaginal operation is anticipated the nurse is instructed to apply the iodine-tannin solution to the vulvar outlet, vagina, fornices and cervix by means of a long dressing forceps armed with swabs of sterile absorbent cotton.

4 A. M. The patient receives some non-curdling drink if she is awake.

7.30 A. M. Morphine sulphate, gr. ¼ subcutaneously. Allow the patient to empty her bladder.

8 A. M. Ready for operation. In the operating room the sterile dressing is removed. The abdomen is cleansed systematically with warm sterile soapsuds; the incision-line first, the pubes, umbilicus and periphery later; two or three large pieces of sterile gauze are used for this purpose. After this, the area is rinsed with warm sterile water and dried carefully with a sterile towel. Strong alcohol follows, and after allowing it to act for one minute the surface is again dried systematically and thoroughly and draped for operation. In case of a vaginal operation the mechanical cleansing with warm sterile soapsuds and rinsing with sterile water are followed by an 1:100 aqueous tannic acid irrigation because this corrugates the slippery surface of the mucous membrane and greatly facilitates the manipulations necessary during operation.

If it is likely that the bladder will be involved in the operation catheterization and irrigation with Cj warm 2 per cent. boric acid solution or 1:100 tannic acid are included in the preparation, particularly if there is a cystitis. If the operation involves the stomach or a proximal part of the small intestine, a stomach lavage with warm water made feebly, alkaline with milk of magnesia or lime water, or 1:100 tannic acid may be a necessary preliminary.

The adoption of a system insures greater accuracy and facilitates clinical study, but the refrain that must come to every clinician who has been laboring industriously to systematize his work, is that no routine, however comprehensive, can be applied fitly to *every* case.

1041 Madison Avenue.

(*To be continued.*)

The next article of this series will deal with "Sterile Wash and Wound Dressing."

CANCER OF THE UTERUS.

Cancer of the body of the uterus was formerly stated to be relatively rare, but whether owing to improved diagnostic methods or an increase in the disease it is now found much more frequently. It is, further, more common in nullipara than cancer of the cervix, which is relatively rare.—FREDERICK MCCANN in the *Canadian Practitioner and Review.*

ARTHROPLASTY FOR ANKYLOSIS*.

JOSEPH WIENER, M.D.,
Associate Surgeon, Mount Sinai Hospital,
NEW YORK.

This paper will deal with complete or almost complete ankylosis of joints. Partial ankylosis can be cured by simple means, such as brisement forcé, hot air baths, electricity, massage, orthopedic appliances, and regulated exercises. But there is a class of cases of ankylosis in which brisement forcé does no good, or even does harm. All other methods of treatment likewise fail. In these cases resections were formerly undertaken; not only did such resections shorten and weaken the limb, but they also only too often were again followed by ankylosis. Some cases of ankylosis in good position, e. g., tuberculosis of the knee, we leave alone. In some cases of ankylosis in bad position we operate and try to obtain ankylosis in good position. But there are many cases of ankylosis in which we would likely get a movable joint without shortening or weakening the extremity.

Rhea Barton, in 1826, was the first surgeon who tried to transform an ankylosed into a movable joint. He did a linear osteotomy below the former joint, and then tried with daily passive motion of the lower fragment to obtain a movable joint. Naturally, motion could only be kept up a short time on account of callus formation at the site of the osteotomy.

According to Ollier three conditions are necessary to obtain a movable joint:

1. The two bony surfaces exposed at the operation must be kept apart during the entire reparative process.

2. We must prevent the regeneration of bone in the space between the two fragments. The periosteum must be thoroughly removed.

3. Living fibrous tissue should be interposed between the two bony surfaces.

Various surgeons have used various foreign bodies in attempting to obtain movable joints. Absorbable foreign bodies were also tried, but they were unsuccessful. Froelich used a strip of celluloid, but ankylosis resulted four months after operation. Roser used a piece of gold leaf. The objection to this is that it does not remain intact indefinitely. When it is no longer intact, it no longer keeps the bony surfaces apart, and hence is open to the same objections as the absorbable foreign bodies. Chlumsky's extensive animal experimentation proved this. Rubber or celluloid would be good if they were tolerated indefinitely. But we know from experience in other parts of the body that we are never sure that a celluloid plate will remain in place permanently. And we must not forget that in a joint surface there is much more irritation than in other parts of the body, and consequently less likelihood of the plate remaining in place. I succeeded nine years ago in correcting a saddle nose by introducing a celluloid plate. But compare the slight friction of the skin over the nose with the friction at the elbow or knee.

Skin has been suggested as a suitable tissue for interposition between the articular ends of the bones. The objections to its use are, first, that it is difficult to make the skin aseptic; and second, that a desquamation of epithelium from the surface of the skin would be going on into the new joint. This in time would be apt to set up an inflammation in the joint. The interposition of tendon has given some good and some poor results. Muscle, especially if combined with some fat, is admirable for this purpose. Many cases of ununited or badly united fractures have long shown us that the interposition of muscle between two raw bony surfaces will very effectually prevent the formation of callus, and the union of the bony surfaces. There are sufficient cases of arthroplasty with muscle interposition reported, to prove the method a good one.

Fig. 1. Note Complete Destruction of Elbow Joint. Humerus, Ulna and Radius are Matted Together by a Mass, a Callus.

There is no sign of synovial membrane or of the articular ends of the bones.

The joints amenable to operative treatment are: 1, temporo-maxillary; 2, shoulder; 3, elbow; 4, hip; 5, knee.

The cases of ankylosis in which resection is un-

*Read before the N. Y. Academy of Medicine, Section on Orthopedic Surgery, April, 1911.

successful are chiefly due to gonorrheal arthritis, rheumatism or gout, suppurations complicating the eruptive fevers or the puerperium, and traumatic arthritis including fractures into joints. In all these cases the interposition of living tissue, muscle, or fascia with a fatty layer, is especially indicated. By this method little bone is sacrificed, but enough must be removed to separate the bony ends, and to give very free passive motion. By the older methods of resection, not only was there great danger of the reformation of callus and the return of the ankylosis, but, in trying to prevent this, extensive resections of bone were undertaken. This resulted in a shortened and weakened limb, and was only too often followed by ankylosis, or by a flail joint. In other words, by the older operations not only was the patient in many cases not benefited, but his condition was often made much worse.

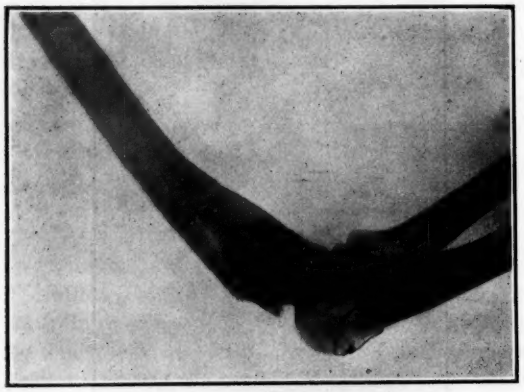

Fig. 2. This Picture was taken Twenty-five Days After Operation.

The silver wire suture is still intact. Note new trochlear surface of humerus and sigmoid cavity of ulna.

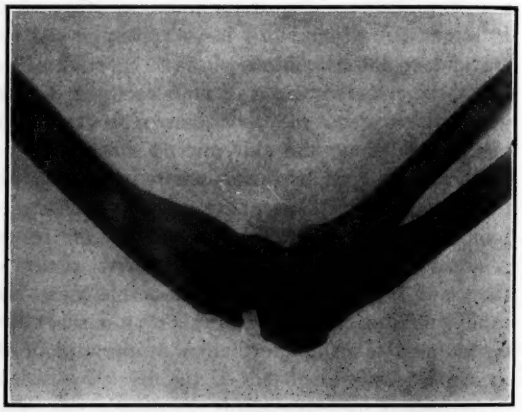

Fig. 3. Taken Forty Days After Operation.

The silver wire suture had been removed eight days before. Olecranon is firmly attached to shaft of ulna. The flap of triceps fascia is evidently functionating well.

Temporo-maxillary Joint. Several cases have been reported showing good results from the interposition of a flap of the temporal or masseter muscle. The osteotomy may be done at the site of the former joint, or through the neck, or even the ramus of the inferior maxilla. A skin flap from the neck has also given excellent motion.

Shoulder. Ankylosis of the shoulder is rare. In the few cases in which arthroplasty was done the results have been good.

Elbow. Muscle flaps have been taken from the brachialis anticus, anconeus or triceps. A flap of fascia and fatty tissue has given good results in the hands of Murphy, of Chicago; Scudder, of Boston, and in my own case. If one fears ankylosis of the head of the radius to the humerus, one could detach two muscle flaps from the triceps, one right and one left, and use the one flap over the radius and the other over the ulna. But a broad fascial flap as used in my case can be turned down and will cover the end of the humerus as well as the radius and ulna. Furthermore, there is less dissection needed in making a fascial flap, no danger of infecting muscle planes, and no disturbance of muscle function. Where feasible, as at the elbow or hip, it appears to me to be the most desirable procedure we as yet have. In arthroplasty at the elbow it is important to retain the olecranon, not only on account of the attachment of the triceps tendon, which is so essential to extension, but also because the presence of the olecranon prevents the forward displacement of the radius and ulna. The arguments against retaining the olecranon are that its presence makes the interposition of muscle or fascia difficult, and that it interferes with complete extension. Regarding the first of these objections, if a temporary resection of the olecranon is carried out excellent exposure is obtained. I did this in the case reported below, and was astonished at the ease with which the bony surfaces were exposed. I had no difficulty in chiselling away as much of the end of the humerus as necessary, and I was also able to gouge out a new sigmoid cavity for articulation with the humerus. It was then easy to turn down the flap from the triceps fascia and cover over the ends of the humerus, radius and ulna. It is true that retaining the olecranon does to some extent limit extension. But is it no better to have a powerful extension, even though somewhat limited, than a complete but weak extension? And we cannot deny that removing the entire olecranon will weaken the triceps action. I

believe that enough of the olecranon and coronoid process should be removed to allow very free passive motion.

Wrist. In ankylosis at the wrist the carpal joints usually take up the work formerly done by the wrist, so that operation is seldom indicated. Nelaton obtained a good result by interposing a flap from the extensor communis digitorum.

Hip. Muscular as well as fascial interposition has given good results. Rochet did the osteotomy inter-trochanteric. Nelaton divided the callus at the former joint. For the after-treatment Buck's extension, with the leg in extreme abduction gave good results. The extreme abduction prevents the adductor contraction which is prone to develop. Whenever possible the limb should be so put up as to favor the weaker set of muscles. In the thigh the adductors are the stronger, in the forearm the flexors. Jones, in 1908, described an ingenious operation which he has frequently done for ankylosis of the hip. And he says, contrary to the advice of Murphy, in many cases of bony ankylosis following tuberculosis or sepsis: "The operation consists in removing a slice of the greater trochanter, chiselling through the neck, and screwing the separated portion of the trochanter to the proximal end of the neck in order to avoid union of the fragments. The neck may be chiselled close to the head or at a little distance, or the neck may be completely removed, or where there has been destruction from disease, additional bone may be removed. The operation, which is not admissible in the case of children, is performed as follows: A longitudinal incision is made about six inches in length with the upper border of the trochanter in its center. An incision is made across the base of the trochanter just below the insertion of the gluteal muscles. A slice of the trochanter from this point to its junction with the neck above is sawn or separated by a very wide osteotome, and retracted upwards. The capsule is now opened and the head separated from the neck with an osteotome. Extension is next put on the femur, and the trochanter, with its muscles attached, is screwed onto the head of the femur, which remains in the acetabulum." Jones advocates this operation in old people as it avoids the shock of disarticulation. His results have been very satisfactory.

Fig. 4. Taken Fourteen Months After Operation.

Line of union of olecranon to shaft of ulna is shown by a layer of dense bone. Note how well the triceps fascial flap separates the articular ends of humerus and ulna. The extent of voluntary motion at this time is shown in Figs. 5 and 6.

Fig. 4*a*. Similar to Fig. 4. Ventro-Dorsal View.

Knee. Helferich proposed the interposition of a muscular flap from the vastus internus. This procedure was first carried out by Cramer. Murphy used a fascial flap in one case, and a fascial and muscular flap in another case with good results.

To quote from Murphy's excellent paper: "From a practical standpoint the classification of joints is as follows: the synarthrosis, the amphiarthrosis and the diarthrosis. The subdivisions of the latter, the ginglymus (elbow, ankle and wrist), the ginglymo-arthrodial (knee, temporo-mandibular), and the enarthrodial (shoulder and hip), are the only joints which concern us in this class of surgical work. The types of motion which are present in these joints are the hinge and ball-and-socket, which

are, respectively, the sliding and rotary motions of the forearm, shoulder and hip; the two latter are the most favorable for the restoration of motion after ankylosis, as the degree of sliding motion is extremely limited compared with that of the elbow and knee.

Before we try to form a new joint or a pseudo-joint, we must bear in mind that normal joints contain bursae which secrete a fluid that lubricates the joint surfaces. Fatty tissue and connective tissue enter into the formation of bursae. In accordance with these embryological facts we employ, when feasible, a layer of connective tissue and a layer of fatty tissue to line or new joint cavity and to prevent ankylosis. By continued pressure of the ends of the bones on this interposed tissue we hope to transform some of the connective tissue cells into flattened endothelial cells, and from the fatty tissue we look for the development of a pseudo-bursa which will secrete a lubricating fluid. Accordingly, when we make a fascial flap, we take with it a layer of fatty tissue. The absence of this fatty tissue may be one of the reasons for failure after transplantation of hernial or hydrocele sacs into joints.

Numerous attempts, both in the human subject and in animal experimentation, have been made in transforming living tissues from other human beings and from animals into joints to prevent ankylosis. Hernial and hydrocele sacs have been most often used. In some of these cases a temporary movable joint has been obtained; but, so far as I have been able to ascertain, all of these joints have ultimately again become ankylosed. A reason for this failure is not far to seek. These transplanted tissues have no blood supply and soon change their character. They lose their epithelium and become transformed into fibrous tissue. Soon osteoblasts are found in the fibrous tissue, and ankylosis follows quickly. I have observed such a case in a child with bony ankylosis at the elbow. Against my advice, a large hernia sac was transplanted into the joint after removing the callus between the humerus and ulna. For a few weeks there was good motion at the elbow, but complete ankylosis soon took place.

In early joint tuberculosis, e. g., of the knee, we often do a resection or excision with resulting ankylosis. Some of these cases are suitable for arthroplasty; and we believe this operation will be more often done when its advantages are more generally recognized. In advanced tuberculosis we often try to get ankylosis, and such advanced cases are not suitable for arthroplasty. If a panarthritis results in the destruction of all the tissues entering into the formation of a joint, bone cartilage, synovial membrane, capsule and periarticular tissues, especially if the muscles and tendons are involved, then no attempt should be made to obtain a movable joint.

The old treatment of ankylosis was by brisement forcé. The only good results were obtained in cases of synovial adhesions. In the great majority of cases of bony, or even fibrous union, no permanent benefit was obtained, and harm was often done. Harm was done because, after a forcible breaking up of adhesions, new bony or fibrous tissue, or both, are deposited in the affected joint, and a previous partial ankylosis may be transformed into a complete one. Where the capsule has become fixed to the head and neck of the bone, especially if cicatrization has taken place in the capsule, it is advisable to thoroughly excise the capsule before the muscular or fascial flap is interposed.

Fig. 5. Shows Degree of Voluntary Extension Fourteen Months After Operation.
This has improved considerably since then.

Murphy lays stress on the fact that the freest motion should be possible before we interpose our flap. There should be no tension under anesthesia from tendons, capsule or ligaments. If there is tension under ether, there will surely be tension and pain afterwards. Enough bone should always be removed to allow very free mobility, also enough of synovial membrane, capsule and ligaments. Unless this is done the best results will not be attained. In the knee, enough of the capsule and lateral ligaments should regularly be removed. The bony union should be divided as near as possible in

the line of the former joint, and the ends of the bone should be made to conform as much as possible to their normal shape. Bony prominences, either normal or abnormal, which interfere with the freest passive motion, should be carefully removed. Important muscular and tendinous attachments should, as far as possible, be preserved. Then after freeing the periarticular soft tissues, the flap to be interposed is sutured in place.

Proper after-treatment is of the greatest importance. In arthroplasty at the hip, the lower extremity should be put up in extreme abduction with Buck's extension. The abduction will overcome the tendency to adductor contraction. In general, early passive motion, massage, hot air baths, and frequently forcible motion under anesthesia to break up recent adhesions, will all be found of value. Radiographic pictures, taken at intervals of a few months, will often greatly aid in the intelligent after-treatment. Occasionally, a tenotomy or a tendon-plastic will be necessary. These cases should be under careful observation for more than a year to get the best results possible. And each case must be carefully studied during the entire after-treatment.

I have purposely allowed almost two years to elapse before reporting the following case, in order to be in a position to judge of the ultimate result:

Max E., 16 years old, Roumanian, admitted to Mt. Sinai Hospital, June 2, 1909. The family history was negative. The boy had always been well and strong. On February 24, 1909, he had fallen down an elevator shaft, and sustained a fracture of the left elbow. He was attended at a hospital in this city, where his arm was put up in splints in a flexed position for three weeks. After removal of the splints, the left elbow was found ankylosed. This condition persisted, together with almost constant pain in the elbow. The pain was increased on moving the extremity.

There was almost complete ankylosis of the left elbow in a right-angled position. Active and passive motion was limited to two or three degrees. Radiographic pictures (see Fig. 1) showed that the cause of the ankylosis was callus formation between the humerus and the ulna and radius. The pictures showed little or no synovial membrane remaining. There had evidently been a supracondyloid fracture of the humerus, with improper union and a great mass of callus.

Operation, June 4, 1909. Murphy arthroplasty for ankylosis of elbow joint. The Langenbeck incision was made over the posterior aspect of the elbow, extending two and a half inches over the humerus. The incision was deepened through the periosteum over the olecranon. With a raspatory the periosteum was scraped back on either side of the median line, and the olecranon divided about an inch below its upper end with a chisel. The fragment was then turned upward on its tendinous attachment as a base, thus exposing what was left of the elbow joint. There was very little synovial membrane remaining. The external epicondyle was found to be in malposition, rotated 45 degrees downwards and inwards, and adherent to the callus on the anterior aspect of the joint. This epicondyle, and with it some of the callus, was removed with a gouge. The anterior surface of the ulna, where it had been chiselled through in dividing the olecranon, was then bevelled with a chisel. It was now possible to obtain complete flexion at the elbow

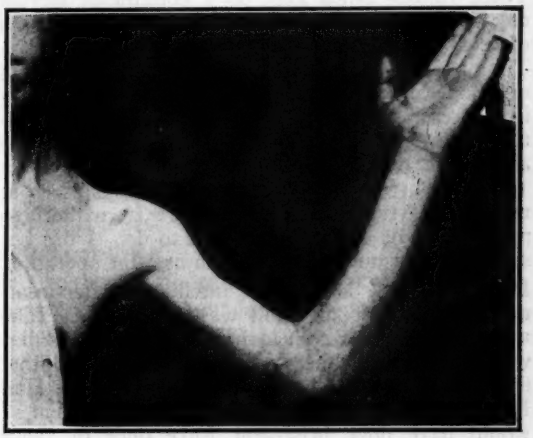

Fig. 6. Shows Voluntary Flexion Fourteen Months After Operation. Subsequent examination showed still further improvement.

and almost complete extension. The lower end of the humerus was next rounded with a gouge to make it conform as much as possible to the normal articular end, and the same was done to the sigmoid cavity of the ulna. Complete flexion and extension were now possible. A flap of fascia and subcutaneous fatty tissue was then dissected from the triceps region, having its base close to the elbow. The flap was about five inches long and two and a quarter inches wide. It was turned downwards into the elbow joint, and sutured with catgut to the margin of the periosteum over the humerus and ulna. The olecranon, which had been divided to give good exposure of the joint surfaces, was then attached to the shaft of the ulna by a silver wire suture passing through the bone (see Fig. 2). The periosteum was sutured with chromic gut, the skin with silk; there was no drainage employed. The arm was put up at sixty degrees extension in a plaster of Paris dressing.

On the following day the hand and wrist were somewhat swollen and cyanotic. There was a marked drop wrist, but no loss of sensation. There was considerable ecchymosis above the plaster cast, especially on the inner side of the arm. Three days later the plaster cast was removed, and a starch and basswood veneer dressing was applied. The drop wrist was still present, but the swelling and congestion of the hand had disappeared. On

June 10 the ecchymosis still persisted, but slight pronation and supination of the hand were possible. I considered the paresis of the muscles to be due to pressure of the inflammatory exudate on the nerves in the upper part of the arm.

On June 23, under gas, I easily did a brisement forcé, breaking up the recent adhesions, and obtained about forty-five degrees of motion. Thereafter the weakness of the muscles steadily improved. On July 6 I removed the silver wire suture from the oledranon. A week later water-glass splints were applied, one above and one below the elbow. Imbedded in these splints were short stout nails. Rubber bands were stretched over these nails, running from the forearm to the upper arm. These rubber bands kept up a continuous flexion day and night. To produce extension the boy was directed to lift weights frequently during the day. The patient was discharged on July 15 (six weeks after operation). Motion at the elbow was steadily increasing, and the muscular paresis had entirely disappeared. Figures 3 and 4 show the amount of motion at the time.

The boy was requested to present himself at regular intervals after his discharge from the hospital. This he entirely neglected to do. I did not see him again until eighteen months after operation. In spite of the absence of intelligent after-treatment, the functional result was a good one. The range of motion is seen in Figs. 5 and 6. The boy was able to carry heavy bundles, and stated that the motion at the elbow was still improving. Had I had complete control of the after-treatment, I would have done brisement forcé once or twice more, and I believe the result would have been even more satisfactory. However, when we consider that there was practically complete ankylosis at the elbow before operation, the functional improvement is enormous.

In future, in a similar case, I would remove a little more of the articular ends of the bones and also some of the coronoid process of the ulna. This would make it easier to obtain free motion, especially in cases that would not remain under regular observation. To obtain the best results all such cases should remain under observation for a full year.

CONCLUSIONS.

1. Brisement forcé is useful in cases only of synovial adhesions; in true bony or fibrous union it is apt to do harm. 2. The interposition of absorbable or non-absorbable foreign bodies does not give good results. 3. The interposition of living tissues such as hernial or hydrocele sac is unsatisfactory, as bony ankylosis regularly results. 4. Arthroplasty is a very valuable procedure in cases of bony or fibrous ankylosis of the jaw, shoulder, elbow, hip and knee. 5. Either muscle, or fascia with fatty tissue, should constitute the interposed flap.

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ADVANTAGES OF THE CURVED INCISION IN CERTAIN CLASSES OF SURGICAL WORK.

ARTHUR BOWLES, M.D.,

ELLSWORTH, KANSAS.

The idea of making use of a curved or semi-circular incision through the skin and subcutaneous tissues is no new one, and very many practical surgeons whose experience has taught them the many advantages of such an incision for the exposure of a subcutaneous operative field, are making daily use of it in their work, without giving it a second thought. Occasionally it has happened that some one man has applied the principles involved in the curved incision repeatedly to one operation, and has made it a part of his regular technic in the performance of that particular class of work, until the entire profession has come to a realization of its advantages, and it has been individualized and elevated to the dignity of having the surgeon's name attached to it, and a separate niche assigned to it in our already too long list of oponymic incisions.

Thus we have Kocher's semi-circular incision for the removal of the thyroid gland, and Pfannenstiel's curved transverse incision for pelvic work. Recently Kelly has advocated the routine use of a curved transverse incision through the skin and fascia with longitudinal separation of the recti as the routine method in suprapubic cystotomy. For years the semi-circular flap for the exposure of lesions of the cranium and cranial contents, has been the common property of the profession, and is recognized as the standard method of procedure in work on these structures.

I realize, then, that in writing this paper I am not advancing a single new idea. Then why write it? It is because I believe that the men who do

most of the work in which the curved incision exhibits its greatest advantages, the men who would derive the most benefit from its more routine application in their surgery, are, in a majority of instances, unaware of the way in which it facilitates the technical procedures in a great many operations, both major and minor.

The curved incision finds its greatest sphere of usefulness in cases where the point of surgical attack is located in the subcutaneous tissues, above or in the muscular structures. This class of cases embraces many minor procedures, which the general practitioner undertakes for himself, and does not refer to his surgical confrère.

For instance, a needle, or piece of steel, or some similar foreign body has penetrated the skin, and is buried in the subcutaneous tissues; it can be felt more or less plainly, and it seems a simple matter to make a little incision, and promptly extract it. So the attempt is made, often with some form of local anesthesia, and sometimes without any attempt to render the field anesthetic. What is the result; the skilful and ready extraction of the offending body? It may be so sometimes, but that is not the way I have usually seen it work out. The actual facts are often about like the following: The physician makes a neat little straight cut immediately over the supposed resting place of the needle. Then he picks up a small forceps for its extraction and peers confidently into the wound. Strangely, the needle does not appear to view. But it can still be felt just a short distance within the tissues; so that will be all right. Just a few deft touches with the knife, and we will have it. These are made and still no needle. So probing is tried, retractors are introduced, the wound is enlarged, and the tissues in the vicinity are converted into a hash, but the needle is still elusive. By this time the operative procedure has extended the field beyond the sphere in which the local anesthetic holds forth, or if ethyl chloride has been used the effects of it have worn off completely, the patient begins to feel pain, and becomes a trifle impatient, and a little peevish at his surgical attendant. The latter also begins to feel the strain of the situation, and to use language. The situation may terminate favorably with the ultimate extraction of the elusive object from a bruised and traumatized area that is predisposed to a later infection as a result of the above surgical efforts. And very often it ends with the needle still in the tissues, and the dissatisfied patient is told that it may not do any harm after all, or he is told that it will have to be located with the *x*-ray before it can be removed, and that a general anesthetic may be necessary. This picture may seem a trifle exaggerated, but I have seen many instances of it, and probably there are few physicians who do not have at least one or two similar experiences.

In great contrast with the above, I have generally found the search for a foreign body, and its subsequent removal, to be comparatively simple when a curved incision is employed. The cut should be semi-circular, having the site of the needle, or piece of steel within its circumference. When the flap is turned back, in a majority of the cases the needle will be at once disclosed within easy reach, and can be caught with forceps without doing any damage whatever to the surrounding tissues. If not at once exposed, it is always much easier to identify and reach it within the muscular tissue, without disturbing its position and crowding it still deeper into the flesh, than if the straight incision is used. No more than one trial will be needed to convince the most skeptical of the great difference made in the work, by the slight change in the shape of the incision.

Another procedure in which I have found the curved incision to be of great service is the removal of all classes of subcutaneous or muscular tumors. Lipomata, either large or small, enlarged glands, cystic tumors, etc., are shelled out through the curved incision far more readily and with less traumatism to surrounding tissues, than with a straight cut directly over the lesion.

In major cases, to cite an example other than the classical ones already spoken of (Kocher's goiter incision, Pfanenstiel's incision, etc.), I have made frequent use of a semi-circular cut in operations for the fixation of ununited or badly united fractures of the lower part of the tibia. Here the bone is subcutaneous, and lends itself ideally to exposure by a curved incision. This should be started externally to the tibial crest, well above the site of the fracture. The cut should then be carried in a bold sweep across the tibia, and well down on the internal surface of the bone, then downward, and in a reverse curve, to a point on the external aspect of the bone, below the lesion. When this flap is reflected the fracture is perfectly exposed, and the ends of the bone can be freed, and brought into apposition without introducing a retractor into the wound.

I have not made us of a curved incision in dealing with fractures of any other bones, but I am inclined to believe that it might be of service in bone work in other localities, where the lesion lies near the surface.

In regard to technic, there is little that need be said. Local anesthesia may be used as readily as in the straight incision, the skin infiltration following the curve of the proposed cut. The incision is carried through the skin and fat, and the flap is grasped at the central point of the curve with a tooth-pointed hemostat. Slight traction on this enables the flap to be readily separated from the underlying tissues with the point or handle of the scalpel, and the operative field is at once well exposed. The flap is held back by the weight of the attached hemostat, and no retractor need be used. If the flap is of large size, or the work is to be at all prolonged it is well to wring a gauze pad out of hot sterile salt solution and wrap it about the flap.

The operation proper may now be proceeded with. In the removal of a foreign body, if the simple raising of the flap does not disclose it, it should be located in the muscular tissues by gentle palpation, and the muscle directly over it split in the direction of its fibers, by running a sharp pointed hemostat into the muscle in the direction of the foreign body and separating the handles. Generally this can be done without any additional use of the anesthetic solution. In shelling out subcutaneous tumors or cysts, it may be necessary to infiltrate the tissues to the sides, and beneath the growth, if it be very adherent. It will be found that the sides and base of the tumor will be very easily reached. If the incision be well planned no retraction need be used, or if any be needed it should be of the gentlest. This is quite an important point, as after the removal of these subcutaneous growths, a dead space is often necessarily left, and if there has been any bruising of the tissues, or prolonged, strong retraction, a wound infection is almost sure to follow.

When the work is completed, the wound is best closed by interrupted sutures of silkworm-gut introduced in a radial direction. If the flap is a large one, or if there is a large dead space, it is well to introduce a strip of iodoform gauze between two of the stitches, and remove it after a couple of days. This is especially true after removing a lipoma, as there is always some breaking down of the fatty tissues if the growth has been at all large. A gauze compress is placed over the entire region, and a rather tight bandage is applied.

The advantages I claim for the curved incision, as compared with the straight, are then about as follows: There is a better exposure of the subcutaneous field, giving much more room to work. Less retraction is required, and this means less assistance needed, fewer fingers in the wound, and consequently less danger of infection. In looking for a foreign body imbedded in the tissues, it is found more readily and with less traumatism. In removing a growth, a much better exposure of the sides and base is possible, rendering the work of dissecting and shelling it out far less difficult. In case the work calls for an incision into the muscular tissues, they are more accessible, and the intermuscular septa and lines of cleavage are more readily found than where the straight incision has been employed and retractors have to be used to haul the sides of the wound in one direction or the other. And lastly the incision is just as readily closed, and heals as well and as quickly.

All of the above are undoubtedly points that speak favorably for the curved incision, so it is only natural that there should be something to be said on the opposite side of the question. There is a possibility of some sloughing of the skin flap from insufficient blood supply. I have observed this twice, the hand being, in both instances, the site of the lesion. In one the flap was of traumatic origin, but I mention it here, because the same thing might easily occur with a flap, the result of an operative incision. The skin of the entire palm was torn loose as the result of a machinery accident, the flap being semi-circular in form, with its base at the ulnar side of the hand. There were bruising and extensive laceration of the tissues, and altogether it was a ragged looking affair. It was cleaned up as well as possible, the torn portions trimmed away, and the entire flap sutured in place. Drainage was but gutta-percha strips through a central tear in the flap. I hardly expected a good result, and I certainly did not get one. The entire palm sloughed out, simply because the blood supply from the pedicle was not sufficient to keep it nourished. I had to perform a skin graft later, in order to prevent contraction. The second case was operative. A tumor had been removed from the dorsal aspect of the hand. No subcutaneous infection occurred, but there was a little sloughing of the flap along its edges. A good result was obtained, but the wound had to be dressed a little longer than if primary union had ensued.

This is the only argument I know of against the curved incision, and I think with a little care it can always be avoided. The points to be observed are to direct the base of the flap toward the source of the blood supply, especially in cases where the depth of the flap is great in proportion to the length of the incision. And if infection is feared, as in cases where there is much dead space below the

flap that cannot be perfectly obliterated, a small gauze or gutta-percha drain should be slipped in between two of the stitches or brought out through a puncture in the center of the flap. With these precautions, I do not believe the danger of sloughing to be of any moment.

Many of the instances that I have mentioned as cases suitable for the curved incision, come under the head of minor surgery, the kind of cases which makes up the bulk of the general practitioner's operative work. I think that a trial of the ideas advanced above will convince him ot their truth, and that by use of the curved incision he will find himself able to operate without assistance and with local anesthesia, many times where a straight incision would necessitate an extra assistant and a general anesthetic.

UNDESCENDED TESTICLE, WITH REPORT OF THREE CASES IN ONE FAMILY.*

GOODRICH B. RHODES, M.D.,
Junior Surgeon Cincinnati City Hospital, Junior Surgeon Episcopal Hospital for Children, Clinical Instructor in Surgery Ohio-Miami Medical College.
CINCINNATI, O.

The mere occurrence of undescended testicle, or of abdominal retention of one or both organs is not of enough rarity to hold medical interest, but its occurrence in three brothers is of such great rarity as to warrant a report, in view of the influence of heredity which is assumed by most writers.

If we study the statistics available as to the frequency of occurrence of undescended testis we find that two observers who present the largest number of cases are remarkably in accord in their percentages. Coley[1] finds that in a series of 59,235 cases of hernia extending over a period of eighteen years (from 1890-1907) in 737 cases (or 1:80), undescended testis was an accompanying feature. Eccles[8] in a series of 48,000 males with hernia, found 754 cases of undescended tetis, 1:56. Bevan[2] quotes a figure obtained from the Austrian army—1:500, while Marshall, in Kocher's Surgery, gives 12 cases found out of 10,800 recruits, or 1 in 900.

Accepting these figures as expressing statistics obtained from sources widely separated we find that they mark the lesion as far from uncommon.

I have been unable to find, in a rather cursory review of the literature, a report of more than two cases in one family. Büdinger[3] reports two brothers as possessing the lesion, and mentions a monorchid, who diagnosed his own case as rupture, who remarked that several males in his family had the same so-called "rupture." Godard reports a case of father and son, both with undescended testes.

J. R., 29, unmarried, presented himself at the University Surgical Clinic for treatment for a knife wound of the thigh. The right scrotal sac was found empty, the testicle itself being located in the inguinal canal just at the external ring. It was freely movable and could be pushed out of the canal for a very short distance toward the scrotum. Apparently a hernia occupied the canal behind the testis. Testis atrophied. No hypertrophy of the other testicle. Right side of prostrate gland considerably smaller than the left side. The patient was fully aware of the diagnosis and said that both his brothers, age 30, had the same lesion, both on the right side. Both brothers were married and had children. The father was normal.

The above case suggests very strongly the influence of heredity, which is assumed by Büdinger[3] as a very prominent factor in the arrest of the testis.

A study of the normal descent of the testis is essential for a thorough understanding of the conditions which are met with in these cases. The description given by Lockwood[4] is very thorough and clear, and is substantially as follows: The epididymis and testicle are derived from two separate structures, the epididymis from the Wolffian body, the testicle from a separate group of cells. In the fifth week of embryonic life the rudimentary testis and Wolffian body lie at the lower and outer border of the kidney, at about the level of the lower third of the kidney. The gubernaculum makes its appearance at the third month, consisting at first of a band extending from the internal abdominal ring to its termination above the so-called "genital string." This latter structure is a cord formed by the junction of the oviduct and Wolffian duct. In this manner each testicle or ovary has a genital string. The blending together of the genital strings in the midline of the body forms the uterus in the female and assists in the formation of the prostrate in the male. The origin and development of the round ligament in the female is explained by this early attachment of the gubernaculum to the genital string. Afterwards the upper attachments of the gubernaculum become more extensive, now reaching along the genital string to the testicle, epididymis, plica vascularis and the peritoneum of the posterior abdominal wall. In early embryonal life the kidney lies very low in the abdomen so that the distance between it and the internal ring is very

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short, and the testis lies very near the ring. The kidney rises in the abdomen later, but the gubernaculum has sufficient strength to hold the testis near the ring and to prevent its being carried up with the ascent of the kidney. In the sixth month the testis lies on the brim of the pelvis on the psoas muscle and the testicle and epididymis begin to acquire a mesentery, or mesorchium, the testicle becoming freely movable in the abdomen. This mesorchium has two parts. (1) An upper part, the plica vascularis, which forms the future spermatic vessels. This runs upward toward the diaphragm in front of the kidney. (2) The replica gubernatrix, containing the gubernaculum testis, passes down to the internal abdominal ring. This plica gubernatrix terminates in the processus vaginalis, a glove-finger projection of peritoneum into the inguinal canal which, already formed, has preceded it in development. This point is an important one in the anatomy of the lesion and is strongly insisted on by Bevan[2], contradicting the often advanced view that the gubernaculum testis drags down with it a pouch of peritoneum. The gubernaculum testis lies behind the processus vaginalis. Fibers ascending from the gubernaculum, together with fibers derived from the anterior abdominal wall blend together to form the cremaster muscle. The inferior attachments of the gubernaculum are important, as they are attached to points where the ectopic testis is found. It has attachments to the perineum, pubes and root of the penis, Scarpa's triangle, and only after the seventh month to the bottom of the scrotum.

The specimen which I demonstrated before the Academy two years ago is interesting as portraying very graphically some of the features of this embryological development. The specimen, removed from a dissecting-room cadaver, consisted of a horse-shoe kidney, the connecting bar uniting the lower poles of the kidneys. From the lower pole of each kidney ran a fibrous cord, which at first was considered an accessory ureter, but on further dissection was found to terminate at the internal abdominal ring. Here it became blended with the structures of the cord, losing itself among the fibers of the cremaster muscle. Both testicles were in the scrotum, there was no hernia, and the prostrate and seminal vesicles were normal. The subject was a splendidly developed negro of about forty years of age. The explanation of this was probably that it was an unobliterated portion of the gubernaculum and genital string, or the remains of the plica vascularis.

The causes of the non-descent of the testis are differently viewed by various observers. In general these factors are considered; abnormalities of the mesorchium; fetal peritonitis; abnormalities of the gubernaculum, inguinal canal, testicle, epididymis, vas or the vessels of the cord; heredity; mechanical obstruction; and smallness of the scrotum. Büdinger claims that heredity and fetal adhesions resulting from peritonitis explain all cases, basing his deductions on fifteen operated cases and two autopsies out of twenty-four cases. In these seventeen cases he found bands extending from the cecum and appendix region, sigmoid and bladder. He calls attention to the undoubted fact that the lesion is most often seen on the right side, where peritoneal adhesions are most commonly found. He agrees with Bevan[2], Moschcowitz[5] and others in finding the vessels shorter than the vas, but considers the reason for this to lie in the imbedding or mechanical shortening of the vessels by the above-mentioned adhesions. He considers the possibility of a congenital shortness of the vessels, only to dismiss it, as we know of no such occurrence elsewhere in the body. All observers seem to agree that the excursion of the testis is limited by the vessels, and that in practically all cases the vas is of sufficient length to allow reposition; the exceptions to this being those cases seen late in life where the testis is placed high and an atrophy and consequent shortening of the vas has occurred, in a fashion analogous to the shortening of the ureter after long standing renal dislocations.

The physiology of this condition presents problems connected with the study of internal and external secretion. Beginning with Leydig's[6] discovery in 1850 of the interstitial cells, confirmed by Kolliker, Henle and von Ebner, work on the functions of the various cells of the testis has furnished an interesting field of investigation. The work of Bouin and Ancel[7], which appeared in 1903 and 1904, has given us more information than we have received from any other source. They have demonstrated the existence of the interstitial cells as an individual and separate gland, which furnishes an internal secretion to the body. This secretion may also give nutrition to the Sertoli and sperm-forming cells. Eccles had previously called attention to the relation of Leydig's cells to development, noticing the decrease in size of the prostrate after castration. This influence of the internal secretion on the development of secondary sexual characteristics has been thoroughly studied by Tandler[9] of Vienna and others. In non-descent of the testis the secondary sexual characteristics are fully preserved, but the function of spermatogenesis is

lost. Griffiths[10] and Eccles[8] are emphatic on this point and the later work of Hanes[11] has shown it to be a fact, demonstrating an entire disappearance of the spermatogenic cells. Griffiths replaced normal testes of dogs in the abdominal cavity and found, after variable lengths of time, atrophy of the testis with contraction of the seminal tubules and no trace of spermatogenesis. On the other hand, Odiorne & Simmons[12] state that spermatogenesis is more common than believed, quoting a case of a double cryptorchid father. They state that the spermatogenic function is lost after thirty years of age.

The pathology of undescended testis concerns itself practically with three conditions: (1) inflammation, (2) hernia and (3) new growths.

The arrested testicle shows a liability to the same inflammations to which the normally placed organ is subject. Simple inflammations, acute and chronic; parotitic metastasis; syphilitic, gonorrheal, and tuberculous orchitis are all reported, with no apparent variation from the frequency of occurrence in the normally placed organ.

Hernia, congenital or acquired, can be demonstrated in the majority of cases. Odiorne & Simmons found hernia as a complication in 49 in a series of 92 cases of undescended testis, or 57 per cent., while Corner[13] found about 70 per cent. of cases in which a hernial sac could be demonstrated. Eccles gives no figures, but states that undescended testis is almost always associated with hernia, and offers the theory that some malpositions of the testis, such as inguino-superficial, or into Scarpa's triangle, are due to pressure by a hernia behind the testis, and not to any traction by the gubernaculum testis.

The persistence of the processus vaginalis, which we have seen always present in advance of the descent of the testicle gives ample opportunity for the congenital variety of hernia. The acquired variety of hernia is probably of less frequent occurrence, but the altered relations of the inguinal canal, with the presence of a distending body in some part of its course, must predispose to hernia. Bevan includes the danger of a potential hernia among the complications with which an undescended testicle may be associated.

The liability of undescended testis to undergo malignant change has been the subject of much controversy. Until the last few years the belief was held that there was a great tendency to sarcoma, and that view is still held by some authorities, but a review of the statistics will show that the undescended testis is not more liable to sarcomatous change than the normally placed organ. Coley has seen only three cases of sarcoma in undescended testis, all of them abdominally retained organs, while in a series of 737 cases of undescended testis not a case of sarcoma was found. He has seen altogether 34 cases of sarcoma of the testis, both descended and undescended, being about 9 per cent. Odiorne & Simmons quote a series of 54 cases of malignant disease of the testicle from the Massachusetts General Hospital extending over a period of 26 years, of which 6 cases, or 11 per cent., were in undescended testis; while Schadel reported 41 cases from a London hospital, of which 5, or 12 per cent., had undergone sarcomatous change. These three figures are well in accord, but Eccles shows a very much lower percentage of occurrence, finding only one case out of 36 cases of sarcoma in both undescended and descended testis, the one case being abdominal, while he reports a series of 854 cases of undescended testis without any malignancy noted. The greater liability of the abdominally placed organ to sarcomatous change is a fact which cannot escape the observation of one who studies the statistics, although the only case of sarcoma of the undescended testis which the writer has seen was situated in the inguinal canal, and metastasis had already occurred.

The rapidity with which metastasis occurs, and the great difficulty attending an early diagnosis of sarcoma in this condition, make the advent of malignancy greatly to be feared and renders the prognosis most hopeless. In no other malignant condition, with the possible exception of melanosarcoma, do we find metastasis so early, and accompanied by so slight a change in the size of the organ or part involved. Metastasis almost always precedes diagnosis, and death usually occurs within one year from the first appearance of symptoms. Metastasis occurs by the lymph channels with first localization in the lumbar lymph nodes before considerable local extension of the growth has occurred, reaching other parts of the body from the receptaculum chyli[8]. A common location for metastasis is in the spinal cord[12].

The type of tumor formation most common in the testis is the round-celled sarcoma, which is strictly speaking not sarcoma, but of epithelial or teratomatous nature. alveolor or diffuse embryonal carcinoma, with polyhedral or rounded cells, often with a lymphoid stroma[14]. Hansemann[15] describes another type as very common, originating in the interstitial cells, forming a round-celled tumor of endothelial type.

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INJURY IN RELATION TO VISCERAL PROLAPSE.*

JOHN J. MOORHEAD, M.D.
NEW YORK CITY.

There is a widespread opinion among the profession and the laity that bodily violence is the main cause of displaced viscera, or visceroptosis. This view refers particularly to the influence of trauma in causing hernia and displacement of the kidney and uterus. As yet it is rarely claimed that injury is a factor in the production of enteroptosis or splanchoptosis.

Independent of the organ affected, there appear to be basic factors producing a displaced viscus, and these may be said to be:

1. The manner of the accident.
2. The site of the bodily violence.
3. The individual.

Obviously the manner of the accident plays an important part, and the greater the degree of violence the greater the effect. There are many exceptions to this general rule, however, and experience teaches that almost total destruction of rolling stock (as in a rear-end collision) is not necessarily compatible with serious injuries to passengers. This was forcibly impressed upon me a few days ago, when, as field surgeon at the recent aviation tournament, I had opportunity to examine and treat several participants injured in aeroplane contests. One accident occurred as the result of a collision between a monoplane and a telegraph pole while the aviator was traveling upward of eighty miles an hour. The telegraph pole was sheared off as if it had been a toothpick, the machine was wrecked, but the occupant of the monoplane sustained only moderately deep lacerations of the face and such mild shock that he left the field hospital unaided in less than an hour, and was not totally disabled at any time. Another case resulting from this newest method of transportation was a forty-foot fall from a biplane traveling at a speed of seventy miles an hour, the aviator and the machine somersaulting several times in the descent, and yet he escaped with general contusions and sprains.

The site of the bodily violence, the part impacted, and its close or distant relation to a viscus are important elements, hence *direct* violence is more prone to cause serious effects than violence applied in an *indirect* manner.

The last factor is the personal equation, the individual makeup, the structural caliber of the injured person. This comprehends the anatomic and the physiologic condition, and takes into account any congenital malformation or predisposition as well as any acquired tendency toward the effect in question.

These foregoing factors are generic bases for arriving at an opinion as to what relation exists between a given accident and a claimed hernial, kidney or uterine descent.

I shall have little to say as to the relationship existing between injury and hernia because that question has been ably discussed here and elsewhere, and it is now definitely determined that even direct violence is practically never the sole cause of hernia. It is my contention that the arguments in support of this view apply with almost equal force to what in effect may be termed hernia of the kidney and uterus, respectively, using the word "hernia" in the very broad sense of an abnormal position of a viscus. As to *traumatic displacement of the kidney* it is to be borne in mind that there is a normal motion of each kidney with respiration to such a degree that in inspiration an excursion of an inch is not unusual. There is also a certain structural formation of the body that determines motile kidneys, and hence has arisen the so-called "kidney index" of Beecher and Lennhoff who measure the distance from the symphysis pubis and the suprasternal notch and divide this by the smallest circumference of the abdomen and multiply the result by 100 (to avoid fractions). This will give figures varying between 63 and 95, with an average of 76. Those with a high index are congenitally disposed to movable kidneys; those with a low index have no such predisposition. This means that the tall and lean have no deep recesses near the vertebral column to lodge the kidneys, nor have they the necessary fat to bind the organ in its normal place. These are congenital factors that independently determine kidney motility in adult life, and the displacement may remain unknown to the possessor until some searching examination brings into view a condition that has been developing since birth.

The right kidney is always lower than the left,

*Read at the 20th annual meeting of the New York and New England Association of Railroad Surgeons, November, 1910.

and it is said to be motile fifteen times oftener than its companion opposite owing to the pressure of the liver. Statistics also show that from twenty to fifty per cent. of women and six per cent. of men have this motile condition. About eighty-five per cent. of all cases occur in women, and this is not necessarily associated with childbearing or tight lacing; for the unmarried and the savage who never saw a corset are likewise affected. In only five per cent. of the cases is the descent bilateral. These figures would indicate that kidney "hernia" in women is a more common affection than intestinal hernia in men. Küster says he found kidney motility once in every twenty-two women examined, and once in every 207 men. Hahn's figures are practically identical.

These then are the factors as to malposition of the kidneys, and those as to variability in the position of the uterus are similar, all of which would indicate that there may be normal variants of our internal organs as well as of those exposed to more direct observation. In my experience the commonest malposition of the uterus alleged to be due to trauma is retroversion, with or without prolapse; anteverted displacements are obviously less often claimed.

In the case of the uterus, as with ordinary "hernia" and kidney displacement, we find that there is a normal structural or anatomical arrangement that makes for the production of a displacement. Likewise we note that a displacement of considerable degree may long exist without symptoms and be discovered only by a searching examination. There is probably no organ in the body better protected from external violence than the uterus, and it is difficult to assume displacement of it from external impact however direct it may be applied. The one cardinal element that determines abnormal position of the uterus is a relaxation of the normal supports, either ligamentous, perineal floor or intraabdominal pressure; hence abnormality of the uterus becomes possible if these interrelated factors are disturbed, assuming the absence of a congenital displacement. If this be true, injury practically never is the sole cause of uterine displacement; in other words trauma bears the same relationship to this occurrence as to hernia. Statistics vary as to the number of women who normally have a displaced uterus, and obviously what would be normal for one would be abnormal for another. It is a common experience to find an anteversion of 90 degrees without symptoms despite the fact that the normal forward tilt is about 65 degrees. Likewise, there are variations as to retrodisplacement of considerable degree without symptoms, and even a prolapse may be long in formation and yet be undiscovered.

In malpositions of the uterus, prior inflammation plays a great part and is secondary only to childbearing and the attendant relaxation of soft parts. An incarcerated uterus has become so as a result of inflammation, and is not due to injury; similarly an extensive degree of displacement always indicates an ancient process. It is common knowledge that this organ has wide normal excursions of latitude and longitude, and it is extremely hard to long maintain it in an abnormal position even when desired, as at an operation. The elasticity of its normal supports is also well known and they have considerable tension capacity. These factors all go to make trauma an incident rather than a producing cause of a malposition.

If the injury is to be justly accused of being responsible for a malpositioned kidney or uterus, certain elements must be taken into account, and these may be said to be:

1. There must be no congenital, anatomical, physiological or pathological prior displacement as determined by a recent examination.

2. The manner of the accident and the site of the violence must be such as to bear a reasonable relationship to the affected organ.

3. The immediate symptoms should be those typical of an organ suddenly dislocated; in effect, the signs of intraabdominal injury should exist at the time of the injury and not be postponed until the patient is up and about or become manifest days after the accident.

Given, then, a malposition of kidney or uterus we are in a position to state what relation exists between it and a given injury by recalling the foregoing anatomical and statistical factors, and also by bringing our experience to bear in determining what usually and ordinarily happens under like circumstances. In a recent search of diagnoses made in surgical cases as contained in the Report of Bellevue and Allied Hospitals I was unable to find any case in which a diagnosis was made of traumatic displacement of kidney or uterus; and in my own hospital experience I have never seen a case in which trauma was the sole causative agent.

In litigated cases in New York City, claims for visceral displacement are exceedingly common; but in the vast majority of cases any existing displacement was attributable to the causes narrated above, and in many cases was but a part of a general enteroptosis.

In conclusion, I wish to repeat that visceral displacement or prolapse in my opinion is attributable to the same set of congenital and anatomical causes as ordinary hernia.

REMOVAL OF RUBBER PLATE FROM ESOPHAGUS. SOME REMARKS ON ESOPHAGOSCOPY UNDER LOCAL ANESTHESIA.

RICHARD H. JOHNSTON, M.D.,
BALTIMORE, MD.

In June, 1910, a woman, 26 years old, came to the University Hospital complaining of inability to swallow solid food. She stated that two days before, while eating dinner, she had swallowed a rubber plate which held two incisor teeth. She went at once to another hospital where examination of the throat revealed nothing abnormal. Her symptoms grew steadily worse until liquids passed down with difficulty. The next morning an *X*-ray picture showed a shadow in the cricoid region. That afternoon a preliminary dose of morphin and atropin was given hypodermatically. The patient was examined in the sitting position after applying 10 per cent. cocain solution to the mucous membrane of the throat and the upper end of the esophagus. With Jackson's laryngoscope the larynx was pulled forward and the swollen edematous membrane of the esophagus brought into view. In a moment the edge of the plate was seen lying transversely across the esophagus. It was easily seized with Pfau's forceps and removed. Aside from a slight sore throat the patient made a prompt recovery.

Since undertaking esophagoscopy about three years ago, I have used local anesthesia in a number of cases with satisfaction. The argument advanced by some that we do not have time to make a careful examination has not held true in my patients. All examinations are made at the hospital and it is our invariable rule to precede the first examination by a hypodermatic injection of morphin and atropin a half hour before examination. At the time of examination the patient is seated as comfortably as possible and the head supported—not held—by a nurse in an easy position. We do not insist upon forced extension of the head since it is easier to pass the esophagoscope and much more comfortable for the patient with the head further forward. After passing the cricoid cartilage the different parts of the esophagus are examined by turning the patient's head in different positions and not by trying to force the instrument down, which is dangerous. After applying cocain, 10 per cent. to 20 per cent. solution, to the pharynx, larynx and esophagus, Jackson's laryngoscope is gently introduced for the examination of the upper end of the esophagus. I may say in passing that the secrets of success in esophagoscopy under local anesthesia are gentleness and patience in manipulating instruments and constantly reassuring the patient that, with his co-operation, he will suffer no pain.

After one has examined a number of cases he can soon tell whether there is any pathologic condition in the cricoid region. If nothing is found the 10 mm. tube is passed into the right or left pyriform sinus. We have now reached the most difficult part of the examination for, the cricoid cartilage safely passed, the remainder is comparatively easy. The principal caution to be observed in passing the cricoid is never to use force on the esophagoscope. The walls of the esophagus are

thin and any undue force may result in rupture with a fatal ending. After passing the instrument into the pyriform sinus, the larynx is pulled forward by making traction on the handle of the laryngoscope and the esophagoscope is simply guided into the esophagus. Its own weight usually carries it past the cricoid cartilage. If resistance is met with it is usually due to the fact that morphin has not been administered or sufficient cocain has not been used. In some cases removing the instruments and introducing them on the other side meets with prompt success. After the esophagoscope has passed the cricoid, the laryngoscope is removed and the examination is made at leisure. I have found that most patients will tolerate the esophagoscope from 15 to 30 minutes which, to an experienced man, gives plenty of time for a careful examination of the esophagus. I do not believe that anyone will deny that cocain simplifies any examination in that it does away with the danger of general anesthesia and thus provides the co-operation of the patient. The mucous membrane of the esophagus is very slightly sensitive and the parts to be anesthetized are the pharynx, larynx and the upper end of the esophagus.

By the above method I have succeeded in removing foreign bodies and diagnosing and dilating strictures, malignant and benign. In young chil-

dren I never use anesthesia in esophageal work. In my early experience I lost a baby, 14 months old, from ether pneumonia 10 days after successfully dilating a stricture in the cricoid region. In only one patient have I failed to make a satisfactory examination of the esophagus with local anesthesia and he was a man with a short thick neck who absolutely refused to help me. The examination was successfully made the next day under ether and chloroform; the patient recovered from the anesthetic but died suddenly seven hours later from some unknown cause. Had I persevered with local anesthesia, I am satisfied the patient would be living to-day.

From my three years' work in esophagoscopy, I have drawn the following conclusions:

In an otherwise healthy patient esophagoscopy under local anesthesia is a safe and practical procedure.

All instruments must be used gently and carefully.

The pharynx, larynx and upper end of the esophagus must be thoroughly cocainized.

The patient must be placed in as comfortable a position as possible so that he will not tire.

The operator must be familiar with the anatomy of the parts and should be skilled in the use of throat instruments.

A preliminary injection of morphin and atropin is of great value; morphin relaxes the muscles and atropin dries up secretion.

In the majority of patients esophagoscopy is as easy under local anesthesia as under general anesthesia and safer.

It is better, though not absolutely necessary, to make the examination in a well-equipped hospital.

A nurse who knows how to support the head and a trained assistant to attend to instruments are valuable aids.

The co-operation of the patient in changing the position of the head, etc., is of great value to the operator.

807 N. CHARLES STREET.

A congenital lipoma or localized hypertrichosis or nevus, or depression, or a combination of these, situated over the spine indicates a spina bifida occulta beneath. In the absence of any such index it is still worth while to skiagraph the spinal column for evidence of a bifidity in the laminae, when trophic, sensory, or motor disturbances in the lower extremities, or loss of or incomplete control of bladder or rectum are not satisfactorily accounted for otherwise.

REPORT OF TWO CASES OF TETANUS TREATED WITH THE TETANUS ANTITOXINE; RECOVERY.

IRVING S. HAYNES, PH.B., M.D.,
Surgeon to the Harlem Hospital.
NEW YORK.

The first case here reported is one of subacute or chronic tetanus and probably would have recovered under any form of treatment.

The period of incubation was about three weeks. The original wound was a slight laceration of the end of the thumb. Ten thousand five hundred units of tetanus antitoxine from the New York City Board of Health were given between the time of admission, August 29 and September 4—a period of one week. At the third dose of 1,500 units, August 31, the patient's temperature shot up to 105°, but under sponging came down to its previous level of 100°-101° during the course of the following 24 hours.

The antitoxine did not lessen the patient's restlessness, his inability to sleep, nor seemed to diminish the force of the tonic muscular contractions, and it was not until sodium bromide and hydrate of chloral had been given, beginning September 1, that the patient went to sleep, and later his muscles began to relax and a general improvement took place.

As the original wound was firmly healed at the time of his entrance to the hospital, no tetanus bacilli were found about it nor were there any evidences of them in the blood.

While the antitoxine may have helped to a more speedy cure of the disease, it is by no means certain that it had any effect whatever upon the course of the disease and that to the bromide and chloral most of the credit should be due so far as medication is concerned.

The second case shows, however, the immense value of the antitoxine serum when used as a prophylactic.

The value of antitoxin when used as a prophylactic is clearly shown by comparing the mortality of tetanus before its introduction, and that obtained at the present time.

According to Stewart (*American System of Practical Medicine*, Vol. L., 1897), the mortality, when symptoms arose before the tenth day was 96 per cent.; in chronic cases, where the period of incubation was from two to three weeks, 25 to 50 per cent.

That the antitoxine serum has only a slight curative action in both acute and chronic cases after the

symptoms of the disease are well marked is shown by the report of cases treated by the use of the serum quoted by Jacobson and Pease (*Annals of Surgery,* Vol. XLIV.), where the mortality in acute cases is about 83 per cent., and in chronic cases about 43 per cent.

The reason for this is that the tetanus toxine has to be taken up by the nerves proceeding from the infected region and pass through them to the motor cells in the spinal cord. In these situations the toxine is beyond the reach of the antitetanus substance circulating in the blood or lymph. The antitoxine will neutralize the toxine before it is taken up by the nerves, hence the necessity of giving this agent early and hence its curative power when thus early administered. As it is possible for the attack of tetanus to be deferred by a single dose of antitoxine only to break out later in a virulent form, the necessity is apparent of frequently repeating the prophylactic dose until all bacilli have disappeared from the wound and then to make one or two weekly injections until at least three weeks have elapsed since the receipt of the infection.

It is our practice in Harlem Hospital to administer the tetanus antitoxine in all cases of compound fractures, crushing injuries and lacerated wounds that have been contaminated with street dirt and in all cases of blank cartridge, pistol, gunshot or firecracker wounds, as well as punctured wounds from nails, etc. So far as I can ascertain, no case of tetanus has developed in the hospital after such prophylactic treatment. In addition to these measures all such wounds are treated thoroughly after the usual surgical plan, tincture of iodine is freely poured into the wound and rubbed into all parts, and drainage is freely used, chiefly by tubes, rubber tissue and balsam of Peru gauze.

Subacute Tetanus.

P. R., 30 years of age. Admitted to Harlem Hospital August 29; discharged September 10, 1910. One month before patient fell from a bicycle and lacerated his right thumb. This was dressed by a physician and the wound healed. For the past week he has noticed a stiffness in the muscles of the jaw which grew worse and culminated last night in a "spasm of his legs and back," so his friend says.

Examination.—The patient is a large, strong man suffering some pain. All examination is negative except that the jaw is fixed so that the patient cannot open it more than half an inch. There is some rigidity of the neck and of the abdominal muscles. Tenderness is marked along the anterior aspects of both thighs and over both mastoids. Both knee-jerks are exaggerated, Kernig's sign is absent and the pupils react normally. There is an old lacerated wound over the end of the right thumb, healed. The urine has a high specific gravity, 1030, slight trace of albumin and a few hyaline casts. Temperature is 99.5°, pulse 80, full and strong; respirations 26. The patient was given 1500 units of the Board of Health antitoxine at once into his buttocks. August 30; the condition the same, same dose of antitoxin repeated. Again this was given on the 31st. At 9 p. m. his temperature, which had not been above 100°, shot up to 105°; pulse to 132 and respirations to 28. Complained of great bodily pain, was very restless, getting out of bed several times, but there were no twitchings or convulsive attacks. The greatest pain was in his legs and abdomen. A cold sponge bath was given; he broke out into a profuse perspiration and by morning his temperature dropped to 101°. On this day, September 1: 3000 units of the antitoxine were given, also sodium bromide gr. XX, and hydrate of chloral gr. X, per rectum, every four hours. September 2: he began to be very sleepy and this night slept very well all night. 3000 units of antitoxine were given in the morning. His jaw had not relaxed, but the stiffness in the muscles of the neck was less. September 3: bromide and chloral were omitted after the morning dose. Normal saline solution, one pint, was given per rectum every four hours and retained. There was less stiffness in the jaws. Patient is much quieter and is sleeping most of the time. No antitoxine. Blood examination shows, white cells 20800, polys 78 per cent., lymph 22 per cent. September 4: slept well, feels better, takes fluids by mouth, which he has been unable to do previously, 3000 units antitoxine given. Saline and bromide and chloral given at 9, 1 and 5 o'clock. The temperature has gradually dropped below 100°. September 5: improving in all respects; the mouth, however, is very foul with abundant sordes along gums and teeth; peroxide used very often. September 6: rectal medication and salines discontinued. Bromide given by mouth. Chloral discontinued. The patient steadily improved and was out of bed on September 9. Felt well in all respects, but could not open his mouth to its full extent. There was no pain or tenderness about the masseters which had previously existed. He was discharged on the 10th.

Gunshot wound of the leg. Tetanus bacilli in the discharge and in the depths of the wound. Antitoxine used. Recovery, without any symptoms of tetanus developing.

V. P., aged 33 years. Admitted to Harlem Hospital September 18, discharged October 7, 1910. Admitted with a gunshot wound in the lower part of the right leg. The wound of entrance is on the posterior aspect of the leg four inches above the ankle joint. The bullet can be felt just beneath the skin on the outer part of the front of the leg opposite to the wound of entrance. On September 20 under general anesthesia the bullet was removed through a small incision in front and the wound of entrance enlarged and explored. A thick wad of cloth, some shreds of tissue and thick brownish pus cleaned out. Examination of the cloth and pus showed a great number of tetanus bacilli. Antotoxine was given on the following dates and in the amounts noted:

These injections were given as near as possible into or about the great sciatic nerve just below the gluteal fold.

September 26....2,000 units	September 28....3,000 units
September 21....2,000 units	September 23....3,000 units

The temperature was never higher than 100.5° and averaged a degree lower than this. The pulse and respirations were in keeping with the temperature. No nerve or muscular symptoms developed. The wound was thoroughly treated with tincture of iodine at the time of the operation and rubber tissue drain was inserted through and through. After this the leg was treated with a hot sublimate bath for half an hour every four hours, and, in addition, night and morning the wound was thoroughly irrigated with peroxide of hydrogen, full strength. Examination of the wound discharges on September 28 showed no tetanus bacilli, but plenty of staphylococci. The wound healed by October 3, the patient was out of bed on the 4th and discharged on the 7th.

107 WEST 85TH STREET.

A NEW TABLE FOR CYSTOSCOPY.

VICTOR C. PEDERSON, A.M., M.D.,
NEW YORK.

Patients vary considerably as to the best position in which they may cystoscoped. Some give good results lying upon the back with the feet extended for a simple inspection. Other patients are more comfortable in the sitting posture with the thighs separated and the legs and feet hanging free over the edge of the table or supported by stirrups. A third group requires a lithotomy—or an exaggerated lithotomy position with the pelvis on the same level as the trunk or more or less elevated. A fourth group, which seems to be the largest number, does best with the feet hanging over the edge of the table separated by stirrups, the thighs widely separated, the pelvis elevated and the head raised so as to relieve tension on the recti abdominales. In some of these patients the lower extremities must be elevated coordinately with the pelvis. In others it is better to let the lower extremities hang lax in fixed stirrups while the pelvis is elevated.

In was in order to secure all these positions in one table that I was induced to devise a table, description of which is embodied in the following notes.

The top of the table consists of three parts (Fig. 1); head-piece, *A;* body-piece, *B,* and foot-piece, *C,* each of which is movable independently of the others so as to permit the greatest possible variation of position. The head-piece is hinged at *D* upon the body-piece in such a way as to allow the head to be elevated to a right angle with the body-piece no matter what the position of the latter may be, thus the sitting posture may be obtained with the body-piece horizontal, or while the body-piece is elevated the head-piece may be kept at right angles to it or at any other angle desired. This allows bending of the trunk, for example in Trendelenburg's posture.

The head-piece also carries the usual lugs for the adjustable shoulder straps *E,* to prevent slipping in the Thendelenburg's posture.

The middle or body-piece is hinged upon the main frame of the table at *F* and beginning with the horizontal position may be elevated by means of a crank *G* to any ordinary angle including that of the extreme Trendelenburg's posture. In order to permit ready drainage this piece is slotted for three-quarters of its length down the center *H* and deeply notched *I* at the distal edge to accommodate manipulation of the cystoscope and to facilitate the use of a receptacle for fluid immediately beneath the urethra in males or females.

Passing upward toward the head and held in place by tracks, under this middle piece, is a drip-pan *J,* delivering fluid into a bucket carrier on the cross bars of the table. This drip-pan has a flat, as distinguished from a concave, bottom, so that a glass or other receptacle may be set upon it without being upset.

The middle piece of the table also carries the lugs for the stirrups *K, L,* which may be swiveled backward and forward over a range of nearly ninety degrees. These same lugs also carry the

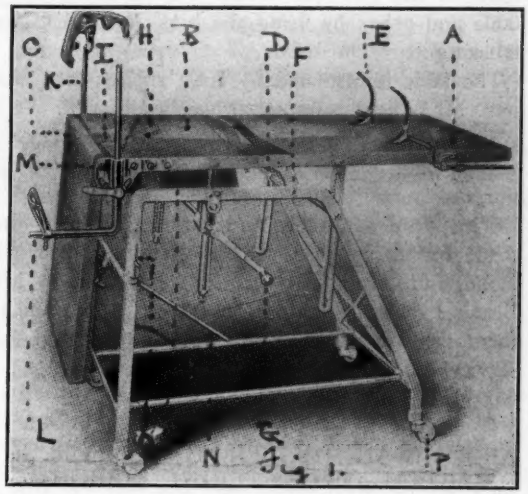

Fig. 1.

pinions for the tail-piece. These lugs are especially available for stirrups in the lithotomy and exaggerated lithotomy positions wherein the lower extremities must remain in constant relation to the pelvis.

The foot-piece swings on two pinions *M* in the lugs, as just stated, and is detachable. It is supported by a center rod *N,* which swings in such a manner as to allow the feet to be placed at any position, beginning with the straight line of the body to a right angle.

The frame of the table is of a simple type for the sake of lightness. The front legs bear two lugs, *O,* for supporting a small tray which is very serviceable for instruments but is not shown in the cut. These lugs are of such a size as to accommodate the stirrups also. When these lugs are used for the stirrups the lower extremities remain suspended while the pelvis is elevated, thus securing the fourth position of the body as previously described.

The stirrups are of two types. Type *K* are fitted behind the knees when flexed in the lithotomy

position. These are supported by the usual angle bars by means of which and of the swivel lugs the stirrups may be adjusted to the patient's comfort.

The other stirrups, *L*, are of the horseman's type, into which the foot fits as far as the leg. These stirrups are supported by bars bent at a right angle, themselves being held in the lugs, preferably on the table lugs, occasionally by those on the body-piece of the table. Thus the lugs may be extended or flexed upon the knees to a considerable range, while the feet are well below the level of the trunk. The feet may remain in this position while the pelvis is elevated if the lugs of the table are used, or the feet may follow the elevation of the table and pelvis by using the lugs attached to the table top.

The table is insulated by large rubber tired casters. It is light, substantial, easily adjusted. It is hoped that it will be found of service as a cystoscoping and operating table for office and hospital purposes.

This very admirable and serviceable table was made for me by the Frank S. Betz Co., of Hammond, Ind., after many helpful suggestions by Mr. Betz. I desire, therefore, to extend to him and to them my very best thanks and appreciation for services so friendly and valuable.

45 W. NINTH STREET.

ABDOMINAL HYSTEROTOMY FOR REMOVAL OF A UTERINE FIBROID.

T. V. ARUMUGUM, M.B.C.M.,
Medical Officer in Charge, Victoria Hospital,
BANGALORE, INDIA.

On October 27, 1910, a multipara of 40 years, who had had three children and whose last born was 6 years old, was brought from Chinthamain to the Out-patient's Department in a low state of vitality with a very feeble and thready pulse, very faintly perceptible at the wrist and with a gangrenous, very offensive mass of soft tissue protruding from the external genitals.

The patient gave a history of having had a growth in the abdomen, which was non-fluctuating, painless, unattended with movements or bleeding, and of nearly two year's duration.

About the beginning of October, 1910, the patient began to pass very offensive blood-stained fluid from the vulva, and on or about October 20, 1910, a foul-smelling, dark-colored mass protruded through the vulva, attended with pain in the lower part of the abdomen; and the pains which were intermittent and were similar to those of labor pains, ceased two days after they had set in.

The patient was rapidly prepared for an operation and was anesthetised with chloroform. On examination the os uteri was found to be fully dilated and the uterine cavity was found to contain a large solid tumor, part of which was protruding through the vulva. Gentle traction on the protruding mass resulted in bringing out shreds only of the decomposed part of the tumor. Then traction was tried with blunt hook and the crotchet with similar results. The blades of long midwifery forceps were applied and locked with difficulty, a certain amount of compression with the blades having been applied before locking. Traction was then applied and resulted in failure. The tumor was then perforated with the hope of evacuating semi-solid contents, if there were any; one blade of the craniotomy forceps was passed into the opening made by the perforator and the other blade was applied on the surface of the tumor. With the blades of the forceps in this position, it was found impossible to compress the tumor; smaller portions of the tumor were caught between the blades of the craniotomy forceps and traction was applied. The blades brought out only very small shreds of the tumor. It was then decided to open the abdomen and the uterus.

The abdomen was rapidly sterilized again and was opened. The uterus was then opened and the large tumor that it contained was easily turned out; and as it was not attached to the uterine wall, the pedicle was probably that portion of the tumor that was protruding through the vulva. The uterus was closed with a continuous catgut suture; the peritoneum and the abdomen were closed in the usual way.

At the end of the operation, the patient had a small pulse at the wrist which was faintly perceptible and was 104 per minute. She was given a pint of normal saline enema while still on the operating table and was then removed to her bed. For 48 hours after the operation, the patient was fed by nutrient enemata every six hours. On the third day after the operation, the bowels moved three times after a 5-grain dose of calomel. The patient made an uneventful steady recovery except that three suture abscesses formed in the abdominal wall which healed in the course of a few days. The uterus was felt above the brim of the pelvis until November 15, 1910, but not after that date, and the patient left the hospital on November 24, 1910.

The tumor, which was a soft fibroma, was ovoid in shape and its shortest diameter was 11 inches.

This case was reported at a meeting of the members of the Mysore Medical Association, held at the Victoria Hospital, on March 30, 1911.

RECURRENT INFLUENZA AND ANTRAL INFECTION.

A large number of patients have influenza a number of times during the year. These are not new infections, but Pfeiffer's bacilli are retained within the antrum of Highmore or one of the sinuses and as soon as the patient's resisting power is lowered by an exposure to inclement weather, or to an indiscretion in diet, the bacilli assert themselves and the individual again has a relapse of his influenza. —W. J. THOMASON in *Kentucky Medical Journal.*

SCIENTIFIC COMMUNICATIONS.

WATER MEDIUM CYSTOSCOPY VS. KELLY'S METHOD.

A REPLY TO DR. KELLY'S REPLY TO DR. O'NEIL.

WINFIELD AYRES, M.D.,
NEW YORK.

In the July number of the AMERICAN JOURNAL OF SURGERY appears a "Reply to 'A Criticism of the Technic of Ureteral Catheterization of Howard A. Kelly,' by Howard A. Kelly and Curtis F. Burnam." This reply can scarcely go unanswered as it contains too many mistakes. Should Dr. Kelly thoroughly study the advantages of modern cystoscopy I am confident he would modify his statements.

Dr. Kelly says: "As a matter of fact, experience has taught us that if the bladder be thoroughly washed, even though it is markedly diseased, it is possible to apply this method. (*i.e.*, one catheter in the bladder and one in the ureter). Provided the kidney above is healthy, the urine so obtained (*i.e.* from the catheter in the bladder) will be free of pus and blood and microscopically free of bacteria." What does Dr. Kelly mean by a "markedly diseased" bladder? All of us have treated bladders that required over an hour's washing before the return flow would be even macroscopically free of pus. He surely does not mean that kind of a bladder. And yet we are sometimes required to obtain separate urines of a patient who has such a bladder as this. No reliable data of the "other kidney" could be obtained without bilateral catheterization. Even in a slightly diseased bladder I would not care to give an opinion of the opposite kidney by a study of the collections from the bladder as described by Dr. Kelly.

For the sake of argument let us admit that the diseased bladder can be cleaned and hpnotized so that no pus other than from the opposite kidney will be found in the collection from the bladder during a thirty minute period. The supposition is that the patient has unilateral pyuria. By the method employed by Dr. Kelly, after the bladder has been washed the patient must get into the knee-chest position—thirty seconds; the bladder is inspected—two minutes at least for the most cursory examination by any kind of a cystoscope; the ureter found and catheterized—five seconds (but if one takes time to select a catheter to fit the ureter, more time should be allowed for this). Two minutes and thirty-five seconds have elapsed since the bladder was washed. What about the pus that has been coming from the diseased kidney? It has been collecting in the bladder and that organ must be again cleansed before the test can be made, even though one or more hours have just been spent in bladder lavage.

Dr. Kelly says: "On the other hand, with infected urine in the bladder we are very loath to pass a catheter up the ureter of a healthy kidney." Does he wish to intimate that any one violates the rules of asepsis by any such procedure? For his information I will say that in all cases of cystoscopy the bladder is washed as thoroughly as possible before the cystoscope is inserted; and after it has been filled with an antiseptic fluid we do not hesitate to catheterize both ureters.

In speaking of the danger of infection by the ureteral catheter, Dr. Kelly says: "Such infections do occur, and it seems to us with the water type of cystoscopy, must be fairly common." I have never heard of such an infection and I would like Dr. Kelly to tell us where and when such accident occurred.

The fact that many men who began ureteral catheterization with the air cystoscope have discarded air and now use water dilatation is fairly good evidence of its superiority over air. Dr. Kelly refers to Luys as one who successfully uses air in the male, but neglects to mention Bransford Lewis, who was catheterizing the ureters through air medium on male subjects before Luys began. Bransford Lewis now uses water medium.

Dr. Kelly refers to the Nitze cystoscope as the only one worthy of consideration and speaks of the limited size of catheter that can be used with that instrument. Does he not know that Albarran by means of a guide introduced into the ureter has often passed a No. 11 catheter to the renal pelvis? The writer's operating cystoscope is fitted to carry a No. 11 French with ease; and the ureteral orifice will rarely admit a larger. This cystoscope is fitted with a telescope by means of which the wax-tipped catheter may be used with reliability. But the speculum cystoscope used by Kelly is better adapted for the wax-tip in women.

Dr. Kelly speaks of being able to inspect the entire bladder with his cystoscope; he says the images are not distorted, etc. Probably he has never used a good lens system. As one who has inspected the bladder through both air and water, I will say that one can judge better of the conditions present with water dilatation than with air.

In conclusion I shall have to claim that Dr. Kelly is wrong in practically everything he states of the advantages of speculum cystoscope. It is true that a larger catheter may be used with it, but one rarely cares to use larger than a No. 11. The instrument is unquestionably cheap and simple, but that is not important if one is enabled to do better work with the higher priced affair. The statement that a higher per cent. of cases can be catheterized by the use of Kelly's instrument will be doubted by every man who has had experience with cystoscopy in its various forms.

THE PARETIC BLADDER.

There are certain cases of paresis of the bladder, that are caused by edema of the bladderwall.

This edema may be produced by gross mechanical interference with the circulation by the impaction of tumors, whether they are a pregnant uterus or any other uterine tumor or an ovarian tumor.—G. KOLISCHER in the *Chicago Medical Recorder.*

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WALTER M. BRICKNER, M.D., Editor

NEW YORK, SEPTEMBER, 1911.

BECK'S BISMUTH PASTE.

Reports of nitrite and of bismuth poisoning following the use of Beck's bismuth pastes are far less frequent in the literature now than they were soon after the introduction of this method of treating sinuses, when its dangers and its technique were less understood. Nevertheless, one may still see from time to time a severe stomatitis or other evidence of poisoning by the probably too liberal use of a bismuth paste.

On the assumption that the beneficent action of the paste is largely mechanical and that the bismuth exercises no specific local effect on the tissues, substitutes for it have been employed. Zinc oxide has been thus used and in the *Journal of the American Medical Association*, July 29, J. R. Mitchell, of Ft. Worth, reports his use, with good results, of a mixture of equal parts of chalk and petrolatum.

If one of these or some other non-toxic metal proves a satisfactory substitute for bismuth the only objection to the use of Beck's method will be overcome. While on the one hand, rationale of the bismuth paste has not been clearly established—except by its clinical results—a purely mechanical action of that mixture, or of any other metal and vaseline mixture, equally remains to be explained.

Whatever its modus operandi, Beck's bismuth paste cures—often with a single injection—a large percentage of persistent chest, bone and even soft-part sinuses that have mocked repeated efforts with the knife. It is at once the simplest and the most useful treatment of these lesions that has been contributed in many years.—W. M. B.

THE CONTINUED SEARCH FOR SKIN DISINFECTING METHODS.

The introduction by Grossich of the disinfection of the operating field by simply painting the dry skin with tincture of iodine, marked at once the widest departure from, and the most satisfactory substitute for, the more familiar method by scrubbing with soap and water and laving with ether and with alcohol. The very simplicity of Grossich's method has made some timid surgeons hesitate to discard what seemed fundamental to surgical skin cleansing—soap and water—but abundant experience has shown that the iodine method is *at least* as reliable as the older and more time-consuming processes; and, in fact, its adoption as the routine in surgical clinics is becoming more and more general.

The real objections to the iodine plan of skin disinfection are few and not serious. The one most to be considered is the production of dermatitis of greater or less severity. The number of individuals who are susceptible to very slight amounts of iodine is very small, and for the others dermatitis can be avoided by using a weak tincture (the Mayos use 3 per cent. only) and by washing off the excess of iodine after the operation with alcohol or ether.

In a recent number of *Zentralblatt. f. Chirurgie* (May 13, 1911), Propping expressed the belief that the Grossich method was responsible for an increase in the number of cases of post-operative intestinal adhesions. Whether or not his observation is correct, his warning that the intestines should not be allowed to come in contact with iodine-painted skin is quite reasonable; but, in fact, with proper toilet of an abdominal operation such contact does not take place.

The employment of iodine on the skin for a goiter operation is, of course, contradicted, and its use on the face is inelegant. Discoloration of the skin by iodine is a disadvantage in the removal of nevi and other lesions whose outlines would be thus obscured.

Prof. König set himself the task to find a *colorless*, non-irritating rapid skin disinfectant to replace iodine on the field of operation, and this he has found, he says, in an alcoholic solution of thymol. In *Zentralblatt f. Chirurgie*, June 17, 1911, König

and Hoffmann report their experimental and clinical results with "thymolspiritus." They report that if a dog's (shaved) skin is painted with 1 per cent. solution of thymol in 60 per cent. alcohol, pieces of the skin removed at intervals of one to fifteen minutes thereafter show no growth in bouillon even at the end of three days. For human beings, however, they used 5 per cent. thymol solutions in alcohol, and their expeience in 130 unselected cases, leads them to assert that the results of "thymolspiritus" rapid disinfection are at least as good as, if not superior to, those of iodine.

The solution is used in about the same way as iodine. Over the dry skin one application is made five to ten minutes before operation and another two to three minutes before. The thymol produces a hyperemia and sense of warmth. In no case did any eczema develop; in a few cases the too free use of the thymol caused some blistering, however. The kidneys showed no effects. Thymol is cheaper than iodine.

To avoid the irritating effects of tincture of iodine, Ellice McDonald recommended (Medical Record, April 25, 1911) a two per cent. solution of iodine in carbon tetrachloride well rubbed into the skin. He has used this for three years.

In the August issue of *Annals of Surgery*, O. W. H. Mitchell, of Columbia, Mo., discusses the "Germicidal and Osmotic Actions of Picric Acid." He quotes Ehrenfried as reporting a saturated (1.2 per cent.) solution of picric acid to be fifty times more germicidal than 1 per cent. phenol solution. Mitchell adopted the clinical-laboratory osmosis tests of penetration and germicidal action established by Seelig and Gould (*Surgery, Gynecology and Obstetrics*, March, 1911) and found that "no germicidal action was shown after sixty minutes exposure when the skin and abdominal muscles were used. When the mesentery was used *B. typhosus* was killed in 15 minutes with a 1 per cent. picric acid solution, in 11 minutes with a 1 per cent. alcoholic solution, and in 15 minutes with 95 per cent. alcohol." At Mitchell's request picric acid solution was used by Dr. Nifong as a disinfectant of the skin in 19 laparatomies. It is applied as a 1 per cent. alcoholic solution after washing with soap and water the day before, and again just before operation. Smears from the skin showed no growth in any case before the second application. Mitchell fails to report, however, on the wound healing. The picric acid penetrates rubber gloves sufficiently to stain the fingers in prolonged operations. There were no untoward effects in any case.

We have at least a few methods of skin disinfection that are satisfactory, but none that is ideal. "Sterilization" of the skin for surgical purposes is a problem that presents many difficulties—mechanical, chemical, physiological—and the establishment of each new method develops new phases of this problem.—W. M. B.

FRANK P. FOSTER.

Dr. Frank P. Foster, dean of American medical journalism, died on August 13, 1911, at the age of 70. For thirty-one years he was the editor of the *New York Medical Journal*, a magazine that grew steadily in dignity and importance under his direction, while other medical publications fell by the wayside. The greater part of Dr. Foster's professional career was devoted to literary medicine. In addition to his journal work he edited Foster's *Encyclopedic Medical Dictionary*, a massive four-volume work that took twelve years to prepare and was translated into seven languages; the *Reference Handbook of Practical Therapeutics*, in two volumes and the 1902 edition of *Adler's German and English Dictionary*.

A master of Latin, Greek and several modern languages, Dr. Foster was a scholar of academic type. He was a purist in literary composition and in medical nomenclature. His insistence on accurate terminology and elegance of expression has been an influence that two generations of medical authors have felt. When the American Medical Association decided upon a revision of the medical nomenclature, Dr. Foster was naturally chosen chairman of the commission and wrote the reports presented in 1909, 1910 and 1911.

A brilliant scholar, a polished writer, Frank P. Foster has left his mark on American medicine. A sympathetic friend and genial companion, he will be missed by all those who had the privilege of knowing him in his hours of relaxation.

SURGICAL ESSENTIALS (NEEF).

With this issue of the JOURNAL begins the series of articles by Dr. Neef. As previously stated, we feel that the large number of our readers will be benefited by the interesting observations contained in these articles. Dr. Neef has tried to give in detail the many points which are so valuable and necessary in the performance of surgical operations, and if some descriptions will be regarded as simple by a few we hope the reader will remember that in simplicity there is perfection.

Surgical Suggestions

Severe neuralgic pain over the bridge of the nose indicates pressure on the anterior ethmoidal nerve probably due to a high deviation of the nasal septum.

Many a distressing frontal headache may be relieved by reducing the hypertrophy of a middle turbinate, preferably by streaking with trichloracetic acid.

The healing of a mastoid wound is often hastened by fewer dressings and allowing Nature to do her part in the reparative process.

A peritonsillar abscess as a rule is more painful than serious. But one should not forget that patients have died of suffocation and that erosion of a vessel may take place in the wall of the cavity and cause death.

A severe sore feeling in the throat is frequently complained of by nervous individuals. Close inspection will show numerous fine white spots surrounded by a red areola—herpes.

A small erosion of the trachea may give rise to a distressing hemoptysis which differs from a hemorrhage from the lungs in that there are no lung symptoms, no loss of weight or constitutional symptoms and in that the bleeding occurs in small lumps of clotted blood.

Pressure from a mediastinal tumor or enlarged tubercular glands will often give rise to an irritative condition of the throat which can in no way be relieved by local measures.

Repeated attacks of "hyperacidity" usually mean gastric or duodenal ulcer—gastric, if the pain is one or more after eating (Moynihan's "hunger pain"), hour or less after eating; duodenal if three hours and probably pyloric if about two hours after eating.

If a patient prepared for ureterolithotomy has a sudden surcease or an exacerbation of pain—and even without these if the stone is quite small—have a fnal skiagraphic exposure just before operating. If the stone has slipped into the bladder it is better for both patient and surgeon to discover this by the *x*-ray than by the knife.

Surgical Sociology

Ira S. Wile, M.D.
Department Editor

The preliminary statistics issued by the Census Bureau as far as they deal with the institutional census present very interesting figures. Prisons, institutions for juvenile delinquents, almhouses, and institutions for the insane and feeble-minded, form the basis of the investigation. The figures are not quite complete at the present time.

The prison population on January 1, 1910, was 109,311; the admissions or commitments during the year 1910 were 462,530; and the number of prisoners discharged during the year on account of expiration of sentence, or other reasons, including deaths, were 458,996.

The number of juvenile delinquents reported in institutions for that class was 22,903.

The number of paupers in almshouses on January 1, 1910, was 83,944. The number admitted during the year was 106,457, and the number discharged or dying was 100,858.

The enumeration of the insane in asylums indicates a very striking increase in this class of the population. In 1904 the number of insane in institutions was 150,151. In 1910 this number had increased to 184,123, an increase of 22.6 per cent. in six years. The number of commitments to insane asylums during the year 1904 was 49,622, and during the year 1910 was 59,628, an increase of 20.2 per cent.

In 1904 the feeble-minded in institutions numbered 14,347; in 1910 the number was 20,199. The number of commitments for this class increased from 2,599, in 1904, to 3,848, in 1910.

When the completed figures are available there will come to light many valuable facts regarding the unfortunate portion of the community that is in a sense parasitic, and grows upon society. The result of our humanity is especially apparent in the increased number of commitments of the insane and feeble-minded. The large number of prison offenses does not essentially mean that the world is growing worse but shows that the number of offenses has been multiplied. Many of the prisoners are counted merely because of imprisonment for the non-payment of fines. Another group that goes to swell the numbers in prison is the short-term prisoners committed for minor offenses. The results of the probation system are not to be noted as the system has had too short a trial and in too small a section of the country.

The new penology that takes a stand for the reformation of the prisoner and his ultimate restoration to society as a useful citizen is interested in the reduction of the number of prisoners through the medium of the indeterminate sentence, probation colonies for inebriates. The health and welfare of the institutional victim is of current prominence. Will the new census figures shed any light on the morbidity ratio of the inmates of all these institutions as compared with the general assumed

ratio for similar age groups in the ordinary walks of life? What forms the greatest cause of death among long-term prisoners in State prisons? How far is the health of prisoners protected through adequate sanitary conditions in the institutions? How many large asylums have no hospital facilities? How many almshouses and workhouses depend for their full nursing service upon the inmates themselves? How many fail to provide for a resident physician but depend upon the more or less regular visitation of some non-resident medical man? In how many places is there any segregation of the tuberculous or the sufferers from active venereal diseases? It is to be regretted that there is such a paucity of information regarding the medical and surgical administration of these institutions that are caring for a large part of the general population. What is the general relation of the health of the inmates throughout those institutions where the prisoners are employed as contrasted with institutions that still humiliate convicts by enforcing idleness or permit a quasi peonage?,What is the incidence of accidents among prison laborers and artisans as compared with the ratio among workers in similar trade in free competition?

Alienists, surgeons, medical men, laboratory workers, research students should have an unusual opportunity for extending the knowledge of science through the careful daily supervision of the multitude who are incarcerated at the expense of the public. Thus at least would the careers of these delinquents be of ultimate good to the community. It has already been suggested, and in a few places put into practice, that inmates of prisons, incurables, defectives, should be utilized for the purpose of human experimentation in the interest of humanity. While this idea might appeal to the zoophilist it is hardly in accord with the general plan of caring for the sick and even the sharers of the festive boards at almshouses are to be placed in the category of the sick or suffering.

The entire subject of surgery in penal institutions will bear investigation and invites study. The restoration of mental competence, through the removal of brain tumors, raising depressed fractures that have long since healed, even the removal of tonsils and adenoids for the benefit of imbeciles should receive careful records. We would call attention to Dr. Axtell's recent articles in this journal on the etiologic relationship of acute angulation and flexure of the sigmoid to epilepsy. The repair of hernia, cure of varicose ulcers or removal of varicose veins, the correction of deformities, all have a place in the surgery of reform institutions. Especial stress might well be given to the various surgical complications of the venereal diseases. For the value that should be possessed by a knowledge of the relation of surgical conditions to the mental and moral weaknesses of the inmates of penal institutions, there is a paucity of figures and literature that does not reflect credit upon the surgical attendants of the institutions in question.

The medical and surgical care of the victims of life's grind should receive more aggressive attention from the men who should be in the van of every reform movement for health—the true physician.

The general movement for the correct registration of accidents and industrial diseases is being crystallized into law. The following legislation in the State of New York is of interest and deserves the full attention of the practitioners of this State.

"58. *Industrial poisonings to be reported.* 1. Every medical practitioner attending on or called in to visit a patient whom he believes to be suffering from poisoning from lead, phosphorus, arsenic or mercury or their compounds, or from anthrax, or from compressed air illness, contracted as the result of the nature of the patient's employment, shall send to the commissioner of labor a notice stating the name and full postal address and place of employment of the patient and the disease from which, in the opinion of the medical practitioner, the patient is suffering, with such other and further information as may be required by the said commissioner.

"2. If any medical practitioner, when required by this section to send a notice, fails forthwith to send the same, he shall be liable to a fine not exceeding ten dollars.

"3 It shall be the duty of the commissioner of labor to enforce the provisions of this section, and he may call upon the State and local boards of health for assistance.

"§2. This act shall take effect September first, nineteen hundred and eleven."

Book Reviews

Applied Anatomy. The Construction of the Human Body Considered in Relation to its Functions, Diseases and Injuries. By GWILYM G. DAVIS, Associate Professor of Applied Anatomy, University of Pennsylvania; M.D., Univerities of Pennsylvania and Goettingen; Member Royal College of Surgeons, England; Surgeon to the Episcopal, St. Joseph's and the Orthopedie Hospitals, etc., etc. Octavo; 630 pages; 630 illustrations, mostly from original dissections and many in color by Edwin F. Faber. Philadelphia and London: J. B. LIPPINCOTT COMPANY, 1911.

The appreciation that anatomical facts which appeared trivial or academic in his student days become of profound importance in practice comes to every physician sooner or later. Indeed, it may be safely said that much of the progress of clinical surgery and of surgical technic in particular is based on a closer and more detailed study of anatomy. Witness the knowledge of anatomy required in tendon and nerve transplantation, some of the newer plastic operations on joints and many of the more recently described operations for hernia. The amount of anatomical learning required by the modern physician is infinitely greater than that required even a decade or two ago.

In the strictest sense, all anatomy is "applied," or at least will eventually become so when medicine and surgery have reached their maximum of development. Until this consummation is attained, a distinction between "applied" anatomy and "systemic" anatomy is necessary. By applied anatomy we refer to the description and application of such anatomical data as have a bearing upon clinical medicine or surgical technique; or, as the author has recently put it in his substitute, "the construction of the human body considered in relation to its functions, diseases and injuries."

We believe the author has accomplished his task admirably. His descriptions are short, clear and unencum-

bered by data that are not of the strictest clinical import. The application of these data to clinical medicine and surgery are briefly but adequately considered. The importance of anatomical landmarks and structure to surgical technic is duly emphasized, and, whenever necessary, surgical operations are briefly described. The exposition is systematic, well-balanced and eminently readable.

The illustrations are as important a feature of the book as the text. These are beautifully executed and reproduced and have been selected with taste and judgment. They are nearly all original. The illustrations of frozen sections in the appendix are admirable and highly useful.

Modern Diagnosis and Treatment of Diseases of Children. A Treatise on the Medical and Surgical Diseases of Infancy and Childhood, with Especial Emphasis upon Clinical Diagnosis and Modern Therapeutics. For practictioners and students of medicine. By HERMAN B. SHEFFIELD, M.D. Octavo; 606 pages; 150 original half-tone photo-engravings and numerous smaller illustrations, some in colors. Philadelphia: F. A. DAVIS COMPANY; 1911.

Practical volumes on pediatrics that are not befuddled by theory are always welcome. Sheffield begins his book with a very simple, though detailed description of the method of examining children with a view to securing a complete physical "status." There is strangely lacking any reference to the mental development of the normal child to serve as the basis for later discussion of the mental diseases.

The chapter on prevention and control of disease has much of merit, but it seems rather odd to find the discussion of infant feeding only under this head. Only 24 pages are given to the subject of nutrition, and this is woefully inadequate. The author favors top-milk feeding—with the upper 18 ounces of a bottle of milk. A curious errors occurs on page 75 in the statement that the writer was chief of one of the milk depots of the charity organization society, when he meant to say a depot under the control of the New York Milk Committee.

The general arrangement of the book is commendable, and the illustrations are well chosen and excellently reproduced. The total omission of pathology is possibly of some value, though it weakens the general force of the remarks on treatment. As a result of this there is insufficient reference to the symptoms that are to be derived from the study of the blood and the various excreta. The value of the volume as far as surgery is concerned may be judged by the fact that talipes is given one-half a page, while hernia, save the umbilical type, are not discussed. Surgery, from the standpoint of diagnosis is not enriched in its literature. The medical phases of the book are of value merely in expressing the views of the writer, which are not always in accord with those colleagues dealing with similar subjects.

The History of Medicine. Philosophical and Critical, from its Origin to the Twentieth Century. By DAVIN ALLYN GORTON. In two volumes. Small octavo; 932 pages; illustrated. New York and London: G. P. PUTNAM'S SONS and THE KNICKERBOCKER PRESS, 1910.

To call this work "The History of Medicine" is a perversion of the meaning of both the words, "the" and "history." The first volume begins promisingly. Gorton's division of medical progress into such periods as the Mythical, Hippocratic, Aristotelian, Medieval and the Renaissance appears both logical and workable. His account of Hippocrates is passable. From Hippocrates he passes to Aristoteles and from him almost directly to Galen. It is amusing to read that "Galen's observations of the pulse have been superseded by the studies of John Mason Good (whoever he may be) and by the introduction of the Sphygmograph, the invention of Dr. Dudgeon, of London in 1870." Marcy is not even in the index. Here we may note, in passing, that Heraphilus is recorded as the discoverer of the circulation of the blood! In the fourth, or Medieval period, we find short sketches of the Arabian school, Avicenna, Abercasis, etc. Roger Bacon is given five pages, in which Bacon's views on religion and some of his discoveries in physics are duly related. We wondered why this philosopher was dragged into a history of medicine until we discovered a paragraph which related that Bacon taught the philosopher's stone. Philosophers in fact, are dragged into the narrative frequently; in most instances, it seems to us, to merely satisfy the author's taste for disputation. Even here Gorton reveals an amazing self-assurance and utter dicta with an almost reckless abandon. He attacks the philosophy of Bacon and Descartes in sweeping phrases. Here is his summary of Descartes: "In his day he (Descartes) was looked upon as a kind of supernatural genii [*sic*], so bold was he to utter and proclaim imaginary views of the unknown. Had he lived to-day he would have excited amusement, and had no following among men of science. Had Descartes devoted himself lately to medicine he would have distinguished himself as the prince of quacks."

The fifth period, or that of the Renaissance, so rich in names of the first magnitude, Servetus, Harvey, Vesalius, Falloppius, Parè, Sydenham, Malpighi, Boerhaave, etc., affords scope for a brilliant essay, but here the author fails miserably. As an instance, we need only note that in the story of the discovery of the circulation of the blood the author fails utterly to trace the development of this discovery or its profound influence on subsequent medical thought. The miserably short account of such a pioneer as Vesalius is not even dignified by the dates of his birth and death, and his only contributions to medicine are summed up in the bare statement that he first practiced dissection on the cadaver, and that he disputed the supremacy of Galen.

The second volume, which concerns itself with what the author terms the sixth period, embracing the Nineteenth Century, is a hopeless jumble of misinformation, undigested data, distorted viewpoints and profound ignorance. There is barely a page which is not open to criticism.

In the first place, Gorton's division of the century into decades, each decade representing an era, is artificial, unwarranted and totally subversive of all historical canons. What right the author had to label the second decade "the era of sects and sectaries," the sixth of "quackery" and the seventh of "etiology" is beyond us to fathom. As another consequence of his artificial division we find the most extraordinary association of biographies in these so-called "eras." In the fifth decade, for instance, we find (in the order in which they are mentioned) Bell (1774-1842), Sarruy (1798-1842), Brodie, Willard Parker (1800-1884), Bigelow, Oliver Wendell Holmes, von Graefe, Langenbeck, Billroth (1829-1894), Dupuytren (1777-1835), Gross, Velpeau (1795-1867), MacDowell, Wells, Warton and Lister.

The biographies are remarkable, some by their vacuity and some by the evident gross ignorance of essential data. Here are one or two typical ones: "Oliver Wendell Holmes was one of the stars of Harvard; the brightest, perhaps, in the Boston firmament at this time. He held and filled the chair of anatomy in that institution—and wrote poetry in prose and verse. His chief contribution to medicine was a word 'anæsthesia' to characterize insensibility produced by ether and chloroform." "Carl Ferdinand von Graefe, who was the first professor of surgery [*sic*] at the Berlin University, which was founded in 1808, with von Humboldt at its head; Johann Frederick Dieffenbach, a surgeon of equal skill, who followed him in that university, the first to use strabotomy [*sic*] in strabismus." Instances of this sort could be endlessly multiplied.

The pages are replete with statements which it would be charitable to call inaccuracies. Diphtheria antitoxin is called "a culture of the Kleb-Löffler diphtheria bacillus." Koch discovered the comma bacillus of tuberculosis. The gonococcus was discovered by Nissl. Pasteur's treatment of rabies "Consists of cultures made from the rabic microbe obtained from the saliva of the rabid dog, attenuated to such a degree as experience has found to be most efficient." Errors of omission are similarly conspicuous. The most glaring instances of this are the complete absence of any mention of Semmelweis and Claude Bernard.

A critique which would disclose all the faults of this

history (?) would occupy a volume. We have said enough however, to show that this work is from every point of view worthless.

It may be of interest to report that Dr. Gorton's biography in "Who's Who" states that he is 79 years old and a graduate of the New York Hygeio-Therapeutic College in 1858. This accounts for many things.

Diseases of the Stomach and Intestines. By Boardman Reed, M.D., Consulting Gastro-Enterologist to the Pattenger Sanitarium, Monrovia, Cal.; Consulting Physician to the Carey Sanatarium and Hospital, Alhambra, Cal.; Late Professor of Disease of the Gastro-Enteric Tract, Hygiene and Climatology in the Department of Medicine of Temple University, etc., etc. *Third Edition.* Thoroughly revised and largely rewritten. Octavo; 1,037 pages; illustrated. New York: E. B. Treat & Co., 1911.

This bulky volume comprises 83 chapters in lecture form. Many of the author's communications to medical journals are published verbatim. More than one-third of the book is devoted to the general aspects of gastric and intestinal diseases, and includes anatomy, physiology, methods of examination, dietetics and methods of treatment. The remainder of the book concerns itself with the special diseases. The discussion is somewhat prolix, not very profound, and is written from the personal viewpoint. References are not very abundant, nor do they reveal a wide acquaintance with the literature. The author's views are sound, conventional, and his treatment judicious. The book, on the whole, leaves a colorless impression.

Studies in Cardiac Pathology. By George William Norris, A.B., M.D., Associate in Medicine at the University of Pennsylvania, Visiting Physician to the Episcopal Hospital, Philadelphia, etc. Large octavo; 85 original half-tone illustrations. Philadelphia and London: W. B. Saunders Co., 1911. Cloth, $5.00 net.

In the preface to his book, Norris states that "No attempt has been made to publish a complete work on the pathology of the heart, the text being mainly in the form of an explanation and an elucidation of the illustrations, and but little space has been devoted to the microscopic tissue changes." The book does contain an unusual number of excellent photographs covering a large variety of heart lesions, both congenital and acquired, acute and chronic. The description of the plates and the account of the pathogenesis and anatomy of the lesions are clear, and have been written with wide knowledge of the literature, both that of the specific theme and that of collateral subjects. The work is especially valuable as a guide to lesions involving the valvular apparatus of the heart.

Much stress has been laid on the relation of rheumatism to abnormalities of the heart. Although statistics have been diligently collected, it is unfortunate that their tabulation is not so clear as might be desired. Another chapter where more clearness might have been desirable is that on simple and malignant endocarditis. The subject is difficult at present, but the peculiar subacute infectious disease caused by the streptococcus viridens, often considered rare, but now regarded as not uncommon, might have received greater emphasis as a pathological entity.

The book is welcome as a summary of the changes taking place in the endocardium and in the valvular apparatus. At this time, however, when physiological advance is teaching new and surprising things about the heart muscle, one cannot but think that the value of the work would have been much enhanced by the addition of chapters dealing with these phases of pathological anatomy more especially, since it is here that the solutions for a number of problems in clinical pathology are possibly to be found. Though the industry displayed in the collection of the material in the book and its value are appreciated, one may be pardoned for insisting that the interest of the general medical public be directed to the heart as a whole, more especially to its muscular and nervous mechanism, slight as our knowledge of them still is, rather than solely to the gross changes which occur in the lining membrane and the vascular supply of this organ.

Golden Rules of Pediatrics. Aphorisms, observations and precepts on the science and art of pediatrics. Giving practical rules for diagnosis and prognosis, the essentials of infant feeding and the principles of scientific treatment. By John Zahorsky, A.B., M.D. With an introduction by E. W. Saunders, M.D. *Second Edition.* Octavo. St. Louis: C. V. Mosby Co., 1911. $2.50.

Books of suggestion are always valuable. Despite an old-fashioned verbose title this handy volume contains much interesting information presented in concentrated form. As the first edition of the book now gives way to the second edition it appears certain that a book of medical maxims is of service to the profession. For pediatric suggestions he general practitioner will find this work of considerable service.

Spezielle Chirurgische Diagnostik für Studierende und Artzte. Bearbeitet von Dr. F. De Quervain, O. O., Professor der Chirurgie und Direktor der Chirurgischen Klinik in Basal. Large octavo; 730 pages; 462 illustrations, and 4 plates. *Third, enlarged edition.* Leipzig: F. C. W. Vogel, 1911. Price, 16 Marks.

The difference in size and completeness between a modern text-book on surgical diagnosis, and one of twenty years ago, is striking. To-day the advances in surgery, permit of autopsy "in vivo" and consequent increase in our knowledge of early stages of diseases. The laboratory is called in to assist blood culture, bloodcount, bacteriology, histological reports, etc.; special methods of examination—cystoscopy, *X*-ray, etc—are employed as a matter of course, and the usual clinical tests have multiplied and gained in accuracy and completeness. Consequently the task of preparing a clear, coherent and not too complicated text-book, which is to embrace such an extensive field as that of surgical diagnosis of the entire body, has grown more difficult. Many attempts to accomplish this almost impossible feat have been made, but few authors have completed their task with the success of De Quervain.

In order to keep this volume within reasonable limits the author has merely mentioned when laboratory methods or special aids are indicated, but has rigidly refrained from entering into any description of their mode of application. On the other hand, he has employed skiagrams with lavish profuseness. Both these and the numerous photographs are well selected, beautifully executed and really serve to illustrate the conditions described. The illustrations are small in size, thus occupying little space, but they have not lost either in clearness or in artistic effect by their reduction. Nor has the reader the impression that some of the pictures have been used as "padding," as so frequently happens at the present day.

The text also shows excellent judgment. The completeness of description is accurately apportioned to the frequency and importance of the disease discussed, although the rarer diseases are by no means overlooked. Chapters to be especially commended are those treating of brain and spinal cord lesions, the descriptions of abdominal conditions and particularly that on appendicitis in which a series of colored diagrams illustrate the various methods and degrees of extension of the disease. More than 200 pages are devoted to the surgery of the extremities.

In his introduction the author warns his readers that efforts at making a correct diagnosis should never be allowed to harm the patient by the employment of too dangerous methods of examination, or by allowing the best time for interference to pass unheeded. Throughout his book he faithfully adheres to these rules. Innumerable concrete examples, extracts from case histories, lend the interest which might otherwise be lacking and serve to give this volume the value of a surgical clinic.

A few omissions have been noted. No mention, for instance, of phlebitis of the legs has been found in the text, or in the otherwise complete index. Both students and practitioners will find this book of unusual interest and merit. It is written by a man of broad views and will have an inspiriting effect on its readers.

Progress in Surgery

A Résumé of Recent Literature

The Gastric Weak Line in Wounds of the Abdominal Wall. R. T. MORRIS, New York, *Journal of the American Medical Association,* June 17, 1911.

Morris offers an explanation of certain cases in which, after operation on the stomach, the wound of the abdominal wall, in spite of apparent primary union and in the absence of symptoms of sepsis, opens unexpectedly a few days after operation. He has recently had an experience of two such cases, one of which he reports, and at the same time heard of two others occurring in the practice of other surgeons. Failing to find anything in regard to the subject in the literature, it occurred to him that the evidence of some trophic fault was sufficient for investigation along the lines suggested by Head, relating to certain superficial zones which are known to be irritated in connection with irritation of different viscera. Head had shown that when we have ulcer of the stomach, the sensory nerves of the skin are irritated in a zone which forms a triangle, the base of which is at the linea alba, extending between the ensiform cartilage and the navel, with its apex at the ninth intercostal space. It seemed to Morris that we might assume that trophic disturbance occurs in the same superficial area, and thus account for the failure of wound repair in these cases. Examining the right Head zone in the cases reported, he found, instead of hyperesthesia, a distinct lessening of sensation, while there were two slightly hyperesthetic spots on the corresponding zone of the other side. These points were observed independently by his assistants. Sensation in the zone was determined to be practically normal, but it seemed as if the trophic nerves which were similarly distributed were irritated simultaneously with the sensory nerves, thus affecting the process of repair. In two cases experimented with by blistering in the Head zone, one of gastric ulcer and the other of angina pectoris, the reaction was more intense within the Head zone and lasted twenty-four hours longer than in a distant test area. All these facts seem to bear out the theory he has offered for these cases of failure of repair.

Gastrointestinal Hemorrhages After Operations. (*Ueber Magen—Darmblutungen nach Operationen.*) J. R. VON WINNIWARTER, Vienna. *Archiv für Klinische Chirurgie.* Vol. 95, Part I.

Since von Eiselsberg published his first observation on gastric and intestinal hemorrhages following operations (1899) many other authors have written on the subject. Most of them are in accord with von Eiselsberg's theory of the causation of these hemorrhages; namely, that they result from thrombotic and embolic processes in the territory of the gastrointestinal circulation.

The author has studied 30 cases of gastric and intestinal hemorrhages after operation. All these cases were operated upon for acute or chronic abdominal conditions; 17 patients died after the operative procedures. At the postmortem examinations, in most of the cases, very little could be found to account for the oft times profuse bleeding during life. It may in general be stated, however, that the anatomical alterations consist in hemorrhages into the mucous membrane, hemmorrhagic erosions, or small ulcers. These lesions are to be found in the stomach or duodenum; the remainder of the intestinal tract is usually negative. These anatomical changes result from injury to the corresponding bloodvessels. Such injury may be: 1. Blocking of the veins from retrograde emboli or from a progressing venous thrombosis; or 2. Paralysis of the circulation in localized areas, the effect of the circulating poison or, in rare cases, the result of an affection of the central nervous system.

The gastrointestinal hemorrhages occur most frequently in the first three days after operation. When the condition from which the patient is suffering is not fatal the gastric or intestinal lesions rapidly get well; the lesions are thus not true ulcers. The prognosis in individuals suffering from profuse hemorrhages is, in the presence of a general infection, very poor.

Treatment of Localized Appendicular Abscess. VAN BUREN KNOTT, Sioux City. *Journal American Medical Association,* August 12, 1911.

Knott discusses the question whether we should or should not remove the appendix in every case of localized appendicular abscess. In the last three years he has operated on 283 cases, sharply localized, with only three deaths. In none of them was the general peritoneal cavity infected. These results were infinitely better than when he had allowed the appendix to remain on account of adhesions, using only incision and drainage. He noticed that in the cases where the appendix had been removed, a large rubber drain put in and the Fowler position employed, convalescence was uniformly smooth and rapid. By separating the adhesions small collections of pus were cleaned out, and the free separation of adhesions tends largely to lessen the danger of postoperative obstruction. With the patient in Fowler's position a large rubber tube will drain the lower peritoneal pouch much more rapidly and completely than the region immediately adjacent to the cecum can be drained, as a tube in the latter position will be more rapidly shut in by limiting adhesions. He gives the technic of his operation. The incision is made through the right rectus muscle, splitting the fibers, and the peritoneal cavity freely opened. Gauze packs are adjusted to prevent escape of pus upward or toward the median line and the abscess cavity freely opened, the pus mopped out and the appendix exposed and removed. All adhesions separating the abscess cavity from the lower pelvis are now freely separated and the pus or sero-pus found in the lower peritoneal pouch mopped up with sponges. A large split rubber tube, from one-half to one inch in diameter and carrying a wick of iodoform gauze, is inserted through the lower end of the wound to the bottom of the rectal vesical pouch, the protecting gauze packs are removed and the wound closed down to the tube with through and through interrupted silkworm sutures. The patient is put in a bed with the head elevated at least thirty inches from the floor and is turned on the right side, which position is maintained for twenty-four hours. Proctoclysis is kept up as long as necessary. Water is allowed, not more than an ounce at a time and frequently repeated, pain is controlled by morphin and nourishment is withheld for forty-eight hours and then given sparingly.

Subphrenic Abscess the Result of Acute Inflammation of the Vermiform Appendix. G. C. Ross, Philadelphia. *Journal American Medical Association,* August 12, 1911.

The principal points to be noted in a consideration of subphrenic abscess complicating appendicitis are: 1. The frequency and incidence as to age, sex, etc. 2. The mode of infection. 3. The anatomy of subphrenic collections arising from disease in the right iliac fossa. 4. The symptomatology. 5. The treatment. From statistics made by him, Ross draws the following inferences: Subphrenic abscess following appendicitis is more common than formerly was supposed and it occurs in from 0.5 per cent. to 1 per cent. of all cases of acute appendicitis. Various authors have agreed that infection may occur as a part of the general peritonitis; by direct extension up the lower peritoneal fossæ; through the medium of the portal vein; and by lymphatic extension (a) up the right peritoneal cellular tissue or (b) up the lymphatics around the deep epigastric artery to the falciform ligament. Ross believes that the second of these methods of approach is by far the most frequent. He has found it impossible so closely to determine the exact anatomic variety of subphrenic abscesses as has seemed possible to some investigators. They may all be grouped into those of the right and left, anterior or posterior. The intraperitoneal or extraperitoneal origin is often impossible to determine. Pathologically, subphrenic abscess in association with appendicitis falls into three groups: 1. Those occurring or found at operation, i. e., an immediate and primary complication of the disease; 2, those making themselves manifest as late or postoperative sequelæ during the postoperative stadium; and 3, cases oc-

curring a long time after the primary infection. In giving a list of symptoms of subphrenic abscess, Ross places first, sepsis following an operation for appendicitis without evidence of it cause, the primary incision progressing favorably. Second in importance to the symptoms of general sepsis are the signs of pulmonary involvement at the base of the lungs. The most valuable of these indications is the presence of a more or less marked area of dulness. In addition to this, the other indications of a collection in the pleural cavity are often found, i. e., lessened breath sounds and fremitus. The abdominal symptoms, when present, are those of any collection within the abdomen. The treatment of subphrenic abscess following appendicitis is that of any other collection within the abdominal cavity. Thirty-one cases are reported.

Testing the Viability of Strangulated Intestine. S. C. PLUMMER, Chicago. *Surgery. Gynecology and Obstetrics,* June, 1911.

Plummer suggests a simple method. After relieving the constriction at the neck of the sac, reduce the affected part of the intestine into the abdominal cavity, but retain a portion of adjacent and contiguous intestine in the wound in order to be able to withdraw and inspect the suspected loop. From three to five minutes after reduction again inspect the loop. By this method all traction on the mesentery is avoided, and the intestine is kept warm and moist in its natural habitat. Contraindications for employment of this method are infection of the hernial sac or advanced impairment of circulation with beginning gangrene.

A Review of 542 Cases of Prostatectomy. E. S. JUDD, Rochester. *Journal American Medical Association,* August 5, 1911.

Judd gives an analysis of all the cases of prostatectomy operated on previous to April 1, 1911, in St. Mary's Hospital, Rochester, including 461 operations for benign hypertrophy, seventy-four for cancer, and seven for tuberculosis. Cancer and hypertrophy were noticed together in several cases. No specific etiologic factors were determined in these cases and the conditions calling for operation were twice as frequent in country dwellers as in those living in the city and only a small percentage had had specific infection. The majority were operated on between the ages of 60 and 70 years. Only eleven were under 45, and fifteen were over 80. Four hundred and seventeen of the 542 patients were married, ninety-four were widowers and nineteen were single. The average duration of symptoms before operation was 5.96 years. The aim was to operate on patients whose symptoms were dependent only on prostatic enlargement, but it was not always easy to determine this point. If only a slight amount of residual urine is found in the bladder by catheterization in a case having marked secondary symptoms without great difficulty in voiding little benefit can be expected from operation, which will be accompanied, moreover, with great risk. On the other hand, if a large amount of residual urine is obtained with the catheter (and atony is excluded) the case is one for prostatectomy, even though the tumor is small. In late years the mortality in the hospital has been materially reduced and better convalescence obtained by spending a little more time in preparing patients for operation. With a permanent catheter in the ureter or through a suprapubic stab-wound the patient is in the same condition as after an operation so far as emptying the bladder is concerned. The secondary symptoms are relieved and the general health can be built up. The specific gravity becomes lower and operation should not be performed until it has risen again, which may take several weeks. As a rule, the Rochester surgeons do not consider it advisable, if the symptoms are slight and only two or three ounces of residual urine are found, to operate. Within the last five years they have used the cystoscope to great advantage in 95 per cent. of the cases in determining the presence of stone and selecting the type of operation. The perineal operation is the one ordinarily chosen, but the cystoscope may show conditions calling for a suprapubic operation. The mortality is not especially affected by the type of procedure. The suprapubic sinus as a rule is slower in healing, but is less likely to be followed by painful complication. They have been able to trace 90 per cent. of their patients and nearly all of them report they are absolutely free from pain. In seventy-four cases of carcinoma the immediate results have been quite as good as in benign cases, but, in such, operation should be advised only when obstruction and bladder symptoms exist. Several of the cancer patients are still alive after more than two years. Of the eighty-one operative patients who have died since leaving he hospital, thirty had carcinoma, and twenty are reported as having been well for some time and then dying of other trouble. Twenty-nine died from kidney lesions before the end of the second month and in nearly all of them the autopsy showed evidence of old nephritis with new nephritis superimposed. These patients, it would appear, had already had some sort of interference in kidney function before operation. The preliminary treatment is considered as the most important factor in the good results obtained during the past few years. By the use of the permanent catheter before operation in suitable cases they have been able to eliminate a considerable percentage of mortality from kidney disease.

Have We an Ideal Operation for Internal Hemorrhoids? A New Hemorrhoid Clamp. A. B. COOKE, Nashville. *Journal American Medical Association,* August 12, 1911.

The essentials of hemorrhoidal operations, accordng to Cooke, are: 1. Complete hemostasis. 2. Immediate closure of the operative wounds. 3. Preservation of the function of the parts. 4. Permanency of cure. 5. Due consideration of the factors of safety, simplicity of technic, time required for recovery and the amount of postoperative pain. The older methods are open to criticism, the ligature method failing in the second requisite, and the clamp and cautery failing as regards the fifth. Of more recent methods, the Whitehead operation conforms only to two of the requisites, the second and fourth, and its modification by means of the use of Earl's clamp, while an improvement, also involves the danger of interference with function of the part. Pennington's enucleation operation has many features to commend it, but it fails as regards avoidance of hemorrhage and is not a simple procedure in the operation itself or in its after care. Cooke offers as the method which he thinks meets all the indications the following clamp and suture method used by himself: "A narrow clamp with tapering blades is applied to the base of the hemorrhoid to be removed in a direction parallel with the long axis of the intestine and so that its smaller, or free, extremity engages the upper, or proximal, portion of the tumor. By depressing the handle of the clamp the end of the blades where the suturing is to begin is brought into full view. A No. 1 or No. 2 plain sterilized catgut suture threaded on a round, half-curved needle is now passed beneath the tip of the clamp and securely tied on the sound mucosa above the base of the tumor. This is the most important step of the operation as, if properly executed, the blood-supply of the tumor that is being dealt with is at once effectively controlled. With scalpel or scissors the portion of the tumor outside the grasp of the clamp is amputated and a continuous suture inserted over the clamp blades, as in the Earl operation. The clamp is then gently loosened and withdrawn and the suture carefully and uniformly tightened and secured at the skin margin. Each pile tumor in turn is treated in a similar manner. If one or more of the growths is of the externo-internal variety, the clamp should be so adjusted as to include as much of the anal margin as may be indicated at each application. In order to avoid the possibility of the tissues slipping from the grasp of the clamp, it is best to amputate the overlying portion of the tumor by degrees, following the knife or scissors closely with the sutures. As a rule the sutures should be placed from ¼ to ½ of an inch apart, though when the first one is properly placed, the danger of hemorrhage is largely eliminated and approximation of the edges of the mucosa is the chief purpose of the remainder." The only dressing needed is a well-lubricated strip of gauze in the rectum and an external compress and pad and a T-bandage. The method is closely allied to the clamp and cautery operation, but the suture is used instead of the cautery for hemostasis and closure of the wound.

A New and Simple Method of Removing a Renal Calculus. HOWARD KELLY, Baltimore, *Journal of the American Medical Association*, July 1, 1911.

A renal catheter 1.75 mm. in diameter, large enough to obturate the ureteral orifice and prevent a reflux of fluid into the bladder, is inserted through an open air cystoscope and introduced well up to the kidney just before giving the anesthesia.

The patient is then put to sleep, preferably with gas, semi-prone, on an Edebohls cushion. An incision is made in the loin and the superior lumbar triangle is pulled open and the kidney exposed and freed on all sides from its fatty capsule.

The stone is then felt and the kidney gently loosened as far as possible on all sides and brought towards the wound. Then an assistant forces fluid (1/1,200 silver nitrate) into the renal pelvis, until it puffs out tense. As a rule, with a careful preliminary study, the exact capacity of the renal pelvis is already known. Then when the pelvis and kidney are swollen up tense the surgeon first incises the capsule and then plunges a blunt-pointed and blunt-edged knife through the cortex on the posterior surface, easily entering the renal pelvis at once and enlarging the incision, in a transverse direction if the stones are small. There is a gush of fluid which stops as he introduces his finger and feels for and finds the stone, which he at once grasps with a small stone forceps and removes.

The calices and the mouth of the ureter are now examined for more stones and the kidney is palpated on all sides with both hands, one finger being inside the renal pelvis. After all stones are removed, the wound is plugged or held closed, while the pelvis and the calices are again distended with the silver solution, when the finger is suddenly withdrawn, letting the fluid escape with a rush, bringing any small calculous *débris* with it. This may be repeated several times.

Kelly emphasizes the following points regarding the operation:

1. It involves a minimal amount of damage to the kidney.
2. It is done through the part of the organ most easily accessible.
3. The distention is invaluable in offering a bag of fluid, overlaid with a zone of soft tissue, which is easily punctured.
4. An exploration is easily conducted through the opening, revealing the presence or absence of other calculi.
5. If it is desirable to keep it open a while for drainage the transverse incision is a good one for this purpose, as it can be left open and will close rapidly when the irrigations are omitted.
6. In the last case in which operation was done, no sutures were put into the kidney, and yet there was no escape of urine after twenty-four hours and practically no bleeding through the incision.

Summary of Results Reported from the Use of Vaccines and the Sera of Gonococci and Other Pyogenic Organisms in Urology. R. F. O'NEIL, Boston. *The American Journal of Urology*, June, 1911.

A critical study of 95 papers on vaccine therapy that have appeared in the literature of the last few years has been made by the author. He finds that, in gonorrheal infections in general, a stock vaccine is as serviceable as an autogenous one but that, in the complicating joint affections, an autogenous vaccine is preferable. The estimation of the opsonic index is unnecessary. Concerning results it is "the almost universal opinion that vaccine treatment in acute or chronic urethral gonorrhea has proved to be of no value." Indeed, "vaccine therapy is, on the whole, of very doubtful value in the local complications" of gonorrhea. On the other hand both gonococcus vaccines and antigonococcic have proven of very distinct value in the treatment of gonorrheal orthritis.

Of the other infections of the urinary tract the most important is the colon bacillus infection. The results of vaccine theraphy in the latter condition may, at the present time, be stated as follows: In acute and subacute pyelitis remissions of temperature and relief of symptoms; in chronic pyelitis and pyelonephritis, unavailing; in colon vacilluria, no effect. In some of the milder bladder infections, systematic relief; in the severer cases, no effect.

Trephining for Apoplexy. J. D. MILLIGAN, Pittsburg, *Journal of the American Medical Association*, June 17, 1911.

Trephining in case of cerebral hemorrhages is recommended by Milligan. He asks whether we shall sit idly by and leave a brain scar or unabsorbed cyst to make the patient aphasic or hemiplegic for life. In a case of intestinal perforation or rupture of tubal pregnancy, prompt surgery would be the rule, and surgery of the brain, he thinks, is equally imperative, though not necessarily so prompt. In hematoma of the brain the first seventy-two hours is likely to settle the fate of the apoplectic, providing he survives the shock, and after that the patient is generally in better condition for operation than in the usual case of cerebral traumatism. Each day thereafter for a limited time, say ten days from the attack, it is still more favorable, and the surgeon can choose his time for operating. As technic improves and the time to operate becomes more definitely known, the percentage of fatal cases will become less. He reports the case of a patient operated on eleven days after the attack, with good results.

A Convenient Form for Keeping Bismuth Paste Ready for Use. M. G. SEELIG, St. Louis. *Interstate Medical Journal*, August, 1911.

Small collapsible tubes, such as vaseline is dispensed in, are procured. These tubes differ from vaseline tubes in that they end in a pointed snout, over which a protective cap screws. The tubes are sterilized by dry heat, and are filled with the paste, after it has been sterilized. The open end of the tube is closed by folding it on itself several times. The paste is used by removing the screw-cap, inserting the nozzle into the fistula, and forcing the paste in by finger-pressure on the tube.

The Prepyloric Vein and Its Relation to the Pyloric Valve. (*La Veine Prepylorique, Ses Rapports Avec La Valvute Pylorique*). E. TRAMBLIN and C. FONTAN, Lisle. *L'Echo Medical du Nord*, July 9, 1911.

Whereas Anglo-Saxon surgeons consider duodenal ulcer a very commonly found lesion, French observers seem pretty generally agreed as to its rarity. The authors believe that this diversity of opinion depends upon the difference in the stress placed upon the prepyloric vein as the boundary between stomach and duodenum. Tramblin and Fontan accordingly made studies of the anatomy of this vein. From the literature of the anatomy of this vein, as well as from their own dissections, they conclude that the vein is not constantly present, that it is often of insignificant size and that its position varies. It is therefore a poor standard for a dividing line between gastric and duodenal lesions, some better anatomical landmark must be employed to differentiate gastric from duodenal ulcer.

The Surgical Treatment of Lupus of the Face. (*La Traitement Chirurgical du Lupus de la Face*). MOUSTIN, Paris. *Paris Medical*, 1911, No. 30.

Despite the progress realized by other modern methods, surgery still occupes an important place in the treatment of lupus of the face. Excision is especially indicated when the disease is of small size and does not involve the edge of the nostrils or the eyelids. Operation here yields the most lasting and the best cosmetic results. When the disease is widespread surgical intervention is indicated only for purpose of relief. Thoroughly curetting and cauterizing the affected area generally results in remarkable amelioration of the symptoms.

It is for the cicatrius resulting from healed lupus that plastic surgery offers a wide range of possibilities. In order to obtain good results Moustin believes that scar tissue must be widely excised—he regularly removes a wide zone of skin adjoining the scar tissue and excises not only skin, but the whole deep fascia. Several plastic operations may be necessary to replace large areas of scar tissue. The author always employs local anesthesia in these operations, except in children. He presents an illustrated report of a number of splendid results.